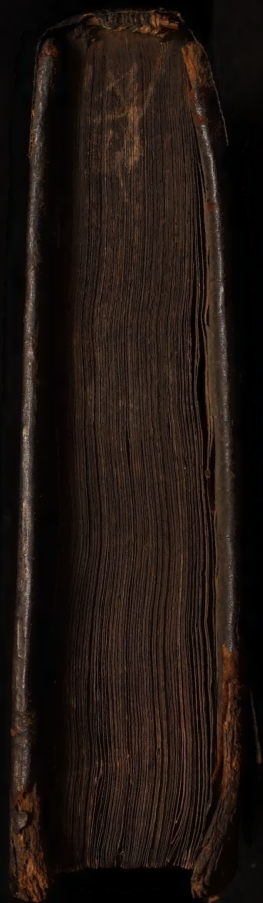


FLOTER

1697







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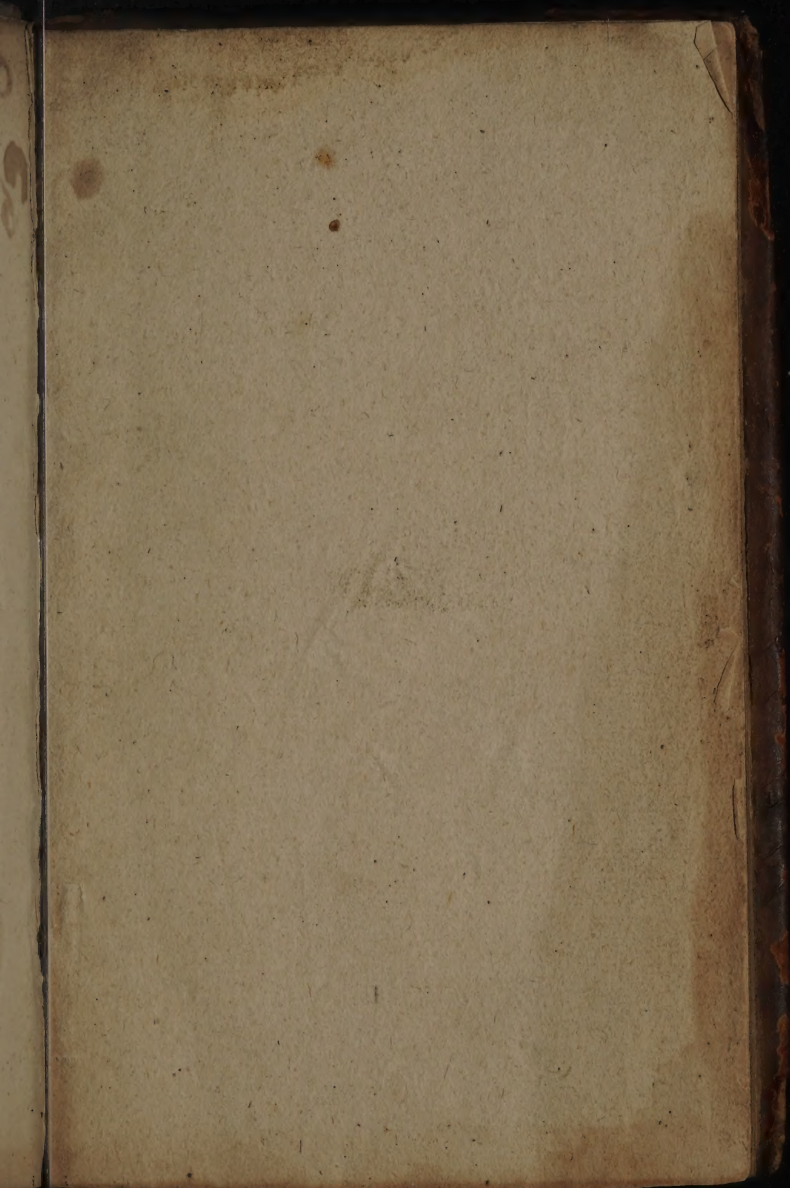
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TRACTATUS cui Titulus, *An Enquiry*
into the right Use and Abuse of Hot,
Cold and Temperate Baths in En-
gland, Imprimatur.

Dat. Ex Aedi-
bus Collegii
in Comitibus
Censoriis.
June 4. 1697.

Tho. Millington Praeses.
Tho. Burwell.
Rich. Torlesse.
Will. Dawes.
Tho. Gill.

Censores.

Go^d. Powell 25
AN 46460
ENQUIRY

INTO THE
Right Use and ABUSES
OF THE
Hot, Cold, and Temperate
BATHS
In ENGLAND.

In which

- I. The several Kinds of Baths are exant'n'd, and their Virtues explain'd by their sensible Qualities.
- II. The right Use and the Abuses of Hot Baths are discover'd.
- III. The proper Use and Abuses of the Temperate Baths are described.
- IV. Cold Bathing, as it is used by the Ancient and Modern Phylicians, is recommended, and the Injuries of it in some Cases are observed: With a particular Description of the Virtues and Use of *Buxton-Bath* in *Derby-shire*; being the most Excellent, Temperate, and safe Cool Bath in *England*.

To this is added

- I An Extract of Dr. Jones's Treaty on *Buxton-Bath*; with some Additions, and Remarks on it.
- II. A Letter from Dr. Clayton of *Lancashire*, concerning the use of *St. Mungus-Well*.
- III. An Abstract of some Cures perform'd by the Bath at *Buxton*.

By Sir JOHN FLOTTER, Kt. M. D.

B.V.V. *Corrumpt Corpora sana, conservant eadem.* B.V.V.

LONDON, printed for R. Clavel, at the Peacock
in St. Paul's-Church-yard, 1697.

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To His Excellency, the most Noble Prince, *WILLIAM* Duke of *Devonshire*, Marquess of *Hartington*, Earl of *Devonshire*, and Baron *Cavendish* of *Hardwick*; One of the Lords Justices of the Realm of *England* during His Majesty's absence, Lord Steward of His Majesty's Household, Knight of the most Noble Order of the *Garter*, Lord Lieutenant of the County of *Derby*, and one of His Majesties most Honorable Privy-Council.

May it please Your Grace,

NOne of the extraordinary Rarities of the Peake surpris'd me with greater Admiration, than Your

A 3

Grace's

The Epistle Dedicatory.

Grace's famous Baths at Buxton, which seemed to me like some rich Mineral conceal'd amongst the monstrous Hills.

This Jewel of Nature is happily bestowed on Your Illustrious Family, who know best how to adorn such natural naked Rarities, with magnificent, pleasant, and convenient Buildings, and, by Your great Example, give encouragement to the frequenting of these excellent and useful Baths.

Where such natural Baths have been wanting, great Princes, or Emperors have supply'd their Defect by artificial ones; by which they express their Opinion of the usefulness of Baths to the Publick; and by the erecting them, they design'd to oblige the Multitude, who
desired

The Epistle Dedicatory.

desired the use of them for their Pleasure,
Beauty, or curing Diseases.

In the most flourishing Times of the
Roman Empire, the number of Baths
was infinite at Rome. The Diocle-
sian Baths equalled four of the greatest
Palaces in Italy. And the Antonine
Baths contain'd Sixteen Hundred
Seats; and by its spacious Buildings,
Places for Exercise, Ponds, Walks,
Portico's, resembled a whole Province:
And these Baths were adorned with
Statues, noble Columns, Silver Pipes,
and rich Gems.

Your Noble Family did formerly erect
these Baths at Buxton; and what is
wanting for Pleasure and Convenience,
is by all expected from Your generous
Hand,

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Baths were always thought worthy of the Care of Statesmen; and Cato opposed the introducing the use of hot Baths in Rome, by which the Roman Manners might be corrupted, and their Bodies made more Effeminate: He discerned the Mistake of the Grecian Doctors, who recommended Hot Baths for the helping of Digestion, whereas it was evident, that they subverted and weakned the Stomach. I hope Your Grace will imitate the Counsel of this Noble Patriot, by incouraging this present Age to leave off the imprudent Use of Hot Baths, and to regain their ancient natural vigour, strength and hardiness by a frequent Use of Cold Bathing.

Your Grace's Bath at Buxton is so exactly temper'd by a mild Heat, that

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that it puts the nicest Constitutions in no fear of danger by the uses of it; but the benefit of it is extraordinary, by restraining the preternatural quantity of Perspiration, by strengtbening the Nerves and natural Heat. By these it is easie to prevent all Inflammations, Pains, Rheums, Fluxes, and Gout, and all other Effervescences in our Humours.

The benefit of Cold Water was anciently known to the Germans, who dipt their new-born Children into Rivers, to harden them; and the Northern People rub their frozen parts with Snow, to regain their natural Heat and Colour. But I will give Your Grace some Examples of Cold bathing from the Romans in the most flourishing time of their Empire; by which it will appear, that

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that I publish no new Doctrine, but only design to revive the Ancient practice of Physick in using Cold Baths, amongst which, Buxton is the most temperate and safe.

Antonius Musa first practised this Cold bathing at Rome, by which he cured the Emperor Augustus, who being subject to Distillations, had long despaired of his Health, till Musa observing the Hot Baths to do him injury, did try a contrary Method, and cured him by Cold bathing. After which, Suetonius relates, that Augustus used Hot Baths very rarely; but for his Nerves he used Sea-Water for a Bath, or the Albulæ, which were the most temperate Baths in Italy; in Virtue and Heat most resembling that at Buxton. For this miraculous Cure, Augustus

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gustus, nobly rewarded Musa, and placed his Statue next to Æsculapius.

By this Success on Augustus, Musa was encouraged to try cold Baths in all Diseases: but as it happens to all Empirical new Methods, it was improperly apply'd by him in the Winter, to young Marcellus, whom Musa killed six Months after he had cured Augustus: and this rash use of cold bathing is described by Horace, which was exposing their Heads and Breasts to the falling of cold Springs on them, in the severe Cold of Winter. But this Accident did not discourage this practice, but obliged the Physician to be more cautious, and to find out the right use of Cold bathing; for Horace, by the Advice of Musa, left the hot Baths, which did injury to his inflamed Eyes, and went to the cold

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cold Baths at Clusium and Gabii ;
but finding those Countries too cold, he
writes an Epistle to Vala about the cold
Baths at Valie and Salernum.

Seneca afterwards practised Cold ba-
thing in the Sea, and calls it his old
Art ; and gave himself the name of
Psuchrolontes, in his Epistle to Lu-
cilius ; and it appears that he was so
great a lover of Cold bathing, that in
the Calends of January, he leapt into a
Spring near Tybur.

I could give more of the History of
cold bathing from the Roman Histo-
ry ; but I think it sufficient that their
greatest Emperor, the wittiest Poet,
and their most admired Philosopher, pra-
ctised the Psuchrolusia.

This

The Epistle Dedicatory.

This practice of Cold bathing was certainly brought by the Romans into England; but it was known and practised also by the Germans, and from them it might come to their Neighbours. The Heathen Priests grounded their Worshipping of Wells on the Virtue of Medicinal Waters, attributing their cheap and sudden Cures to a present Deity. The bringing Aims and Offerings to Wells, was anciently forbid by Edgar's Canons: And Dr. Hammond mentions the Injunctions against worshipping St. Edmund's Well without St. Clement's at Oxford. This Custom was afterwards imitated by the Romish Priests, who dedicated the Medicinal Springs to particular Saints: So one of the Wells at Buxton is call'd St. Ann's; and by the particular Offerings, Pilgrimages,
and

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and Devotions, the Common People were deceived, and attributed all their Cures to the Merit of that Saint, and their own Devotion, which was due to the Physical Virtue of cold Springs, and God's Blessing on a Natural use of them.

The Disuse of these Waters at Buxton I believe was owing much to the Reformation, which gave a general Averſion to the Romish Superſtition, with which the People being out of Humour, they reſuſed the good Uſe, as well as the Superſtition of the Baths. And that Age being very ignorant in Philoſophy, they diſcerned not the natural Virtue of Cold Water, ſuch as is that at Holywell, and St Mun-gus, the moſt excellent of the Coldeſt Baths, and the moſt uſed to this time.

The

The Epistle Dedicatory.

The Civil Wars have occasion'd the neglect of many famous Waters. But I will add this most particular Cause of their disuse; As the Virtues of the Waters formerly supported the Reputation of the Saints, so now the want of a proper religious Office to be used by the Devout at the time of bathing and drinking Waters, leaves all to a general Debauchery of Manners in such publick places, and does very much lessen the number of those who would come thither, if both the Ends of Devotion and Health were served by coming to those places. This neglect of our Church I could not but censure, being no less injurious to the Bodies, than the Souls of good Men.

I have endeavour'd truly to represent to my Country the Virtues of the Bath at Buxton; and it were to be wished, that

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that the Church would propose some proper Devotions fitted to such Occasions ; and we must depend on Your Grace's Munificence, for the Splendor and Ornaments of that place, on Your Presence sometimes, which will occasion a greater Concourse there : And I must humbly beg Your favourable Acceptance of what I here have writ concerning Buxton ; who am,

Your Grace's most Faithful,

humble Servant,

Lichfield, May 1.

1697.

John Floyer.

THE

THE
P R E F A C E.

Concerning the Nature, Causes, and Effects of Perspiration; and the Regulating of it by Baths.

BEfore I discourse of particular Baths, it is very necessary to explain the Nature of *Perspiration*, which the Hot, Cold, and Temperate Baths do most evidently alter, as appears by increasing or diminishing the Weight of our Bodies; and this will oblige me to describe the several Effects or Qualities produced by the Elements, on
a both

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both the solid and fluid Parts of Animals, for the explaining the Changes in our *Perspiration* by them; by the Fire we heat, by Water we cool, by the Air our Humours are made fluid, by the Earth, or rather the Vegetated part of it, as also by our Animal Food, we obtain the Consistence of our Humours, or the dryness or solidity of our containing Parts. These first Impressions on an Animal Body, and its Humours, I will, with the Ancients, call the first Qualities. The Heat and Cold, the Fluidity or Dryness, are perceiv'd by our Touch; and these produce several other Qualities in our Bodies, as they are apply'd either to the solid or fluid Parts; so Heat rarefies, and Cold compresses the Consistence.

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a greater internal Motion in them, and by its own actual Heat and diffused Motion, so to excite the Motion of the Aerial Spirits, as to quicken the Circulation, and thereby produce many mechanical Actions; and by expanding the Air, the Humours are rarefy'd, or attenuated, as all Liquors boiled on the Fire swell, and are inflated by the expansion of their included Air.

2. By the violent agitation in the Particles of Fire, and the Inflation mention'd, some heterogeneous Parts, like a Scum, may be separated from our Humours, as it appears by boyling or digesting of Juices.

3. Fire attenuates, expands, and resolves the Humours, so as to turn our Humours into Vapour, and

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and fit them for *Perspiration*. This Effect of Fire we observe in distillation of Vegetables, which turns the Watery Liquor into a humid Vapour, condensible into Liquor again: It dissolves the Gums and Turpentine lodged in the Vessels of Plants, and by the help of the Watery Vehicle, distils them, and melts them into the Form of an Oil; It turns the crude Tartar of Vegetables, partly into an acid Spirit, and partly calcines it into a fixt Salt; and the rest of the Terrene Parts into Ashes. After the same manner Fire will resolve Animal Humours: First, The Serous Part into Water. Secondly, The natural *Armoniac* Salt in the Humours into a Volatile Salt, and the Acid into a fixt Salt. The Oil is no-

a 3

thing

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thing but the *Globuli* of Fat melted, and the thin part of it distill'd over by the help of Water. The Earthy part is the Ashes remaining. By this Explication it is evident that the Fire changes the natural States of the Principle by Distillation; but it produces no new ones, but every distinct Chymical Principle has its Parent both in the Animals and Vegetables which produced it; but the Difference and Virtue is from the Fire.

4. External Heat attracts to the outward Parts; for by rarefying the Humours, it distends the Vessels, and opens the Pores, by expanding the included Air, and gives way to the Pulse to press the Humours outwardly: So in Cupping-Glasses, the Pressure of the external

Air

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Air is taken off by the Heat of the Fire in them; and the same Heat rarefies the Air included in the Animal Pores and Juices, which produce the Tumour of the Part.

5. Heat condenses or thickens the Animal Humours, by evaporating the Serous Vehicles.

6. It colliquates fat Liquors, which coagulate by Cold, as Jelly Broaths, all Fats, and *Axungia's*.

7. There is another sort of Colliquation made by external Heat, which we call the Putrefaction of our Humours, when the natural Viscidity is so far dissolved or colliquated, as to want a sufficient tenacity or cohælion of Parts, which is necessary to make the *Bullulæ*

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Sanguinea, for retaining Aerial Spirits. Soap gives this viscosity to Water, which makes it fit to retain the Air blown into it. We observe all putrid Humours to be very thin and sanious, as it were colliquated like melted Oil.

The Effects of Cold on our Humours, are contrary to that of Heat; and therefore as Fire acts by the agitation of its Parts, and diffusion of its Particles every way, so Cold, whose Seat is chiefly in Water, (for we naturally depend on that for extinguishing the common Fire, as well as all Animal Heats or Burnings) affects our Sense of Feeling, and produces its several Effects by its less agitation in the Particles of Water, than there is in the Humours of a living Animal.

Cold

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Cold Water is heavier than our Humours, or any other fermented Liquors ; that giving them a great plenty of Elastic Air, makes them lighter, and more easily agitated than Water. And the same Water may seem Cold or Hot, according to the different Degrees of Heat, or agitation of our Humours ; so the Urine appears cold to a Person in a very hot Bath : Therefore I must attribute all the Effects of cold Water on our solid and fluid Parts, to its weight, pressure, or lesser agitation than that in our Humours.

I. Cold chills the Nerves, by compressing the Animal Spirits, and checking their Rarefaction, or natural aerial Expansion ; and hereby it occasions the Skin to contract and shrivel, and stops

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stops its Pores, and hardens the Skin,

2. Cold Water compresses or condenses the Consistence of our Animal Juices, partly by its weight, or contact of Parts less agitated, and also by compressing the rarefy'd Elastic Air in the *Bulbula Sanguinis*.

3. By the stopping of the Pores, by the compressing of the Juices, the internal rarefy'd Vapours which are only Watery *Globuli* expanded by rarefy'd Air, are retain'd; and this may be observed by breathing upon a Magnifying-Glass, on the side next the Object, and immediately looking through it, the Breath appears like a *Congeries* of large Water-Bubbles broken on the Glass. These rarefy'd Bubbles in the Humours,

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mours, and their natural hot *Effluvia*, produced by their Digestion, Motion, Circulation, or Fermentation; and if they be too much evacuated by hot Baths, they make the Body weaker, the Spirits exhausted; but if moderately retain'd, the Spirits are more invigorated, and all the Animal Actions depending on them, Digestion, Circulation, Perspiration, are well performed: And by this means Cold Water strengthens the natural Heat, Spirits, and Vigor or Tone of our Bodies; and for this reason the *Northern Nations* rub their Frozen Parts with Ice, and have always harden'd their Bodies by bathing in Cold Water.

4. Cold Water by over-much compressing the fluid Parts of Animals,

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imals may stop their Motion, and extinguish their natural Heat; but by a moderate compression, the Humours may be check'd in their Motion; and if very viscid, the *Globuli* may cohere, and thereby become grumous, or coagulate; and this way Rheumatic Blood may be made by excessive cold Weather, which causes the viscid Particles to cohere in the Pores when too much compressed. The good Effects of this Compression are to preserve the natural Consistence and Rarefaction of our Fluids, and thereby hinder Putrefaction; but excessive cold makes the external Parts pale, and at last mortifies them with a Gangrene, by hindring the Afflux of warm Nutriment into the external Vessels,

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sels, and by congealing some of the Blood in its Vessels, which putrefies there for want of Nourishment or Motion.

5. Cold Water repels the Circulation of Humours inwardly, and thereby it occasions Fluxes by Urine, Stool, or Spitting: The quantity of the perspirable Aerial Parts retained, causes Fevers or burning Heats. The Serous perspirable retained, give Matter to the Distillations or Fluxes. Cold Countries make our Bodies pale and white; but the hotter Climes black, swarthy, yellow, by drawing the Humours more outwardly, and tinging the Skin with their Colour: Choler makes the Face yellow or green; the well-digested Blood florid; the Vitriolic Spleen Juice, gives

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gives a blackness to the Countenances : And by those sensible Marks, our old Physicians truly judged of the preternatural State of our Humours. But our Moderns too much neglect the useful sensible Notions observed formerly ; and thro' a Humour of Innovations, they reject all the Ancients have writ, tho' very useful, and as certain as our Senses, upon which they grounded all their Observations.

The Operation of the Air on our solid Parts, is to compress them. We may easily discern that Effect, by taking off that Pressure by Cupping-Glasses, or the Air-Pump ; for then the solid Parts swell by the force of the Air compressed in our Humours, which always expands
it

The Preface.

it self by its Elasticity, according as the pressure of the Air, and its Weight are alter'd; but the great use of the Air is inwardly, by giving fluidity, which was formerly understood by the humidity of our Humours. This Effect of the Air on our Humours was not so well understood formerly; but now we allow that Air is included in all Liquors, and gives the following Alterations to the Animal Humours.

1. It being included in the empty Pores of our solid Meats, as well as in the Bubbles of our fluids, by the heat of the Stomach, the included Air being rarefy'd, it dissolves and separates the Particles of our solid Food, and agitates those of the Liquors we drink. By this
internal

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internal Agitation and Rarefaction of the elastic Particles of the Air, the Food is dissolved, digested, and fermented in the Stomach, this Air becomes more elastic by a long Digestion in the Stomach, as is the Spirit of our Animal Juices in its first Origine, and was properly called by the Old Writers, *The Natural Spirit*, which helps the Digestion, Fluidity of Humours, and the Distribution of Nutriment; the more windy part is that which is too elastic, and goes off in the form of Wind, both upwards and downwards.

2. In the Blood this Aerial Spirit is more purify'd, the windy Parts are thrown off by perspiration, or else by breathing. A violent Agitation or Rarefaction is produced

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produced in the Blood, by every Ferment which occasions a Fever, or Defluxion of Humours. It is rarefy'd and compress'd, according to the Heat, Cold, or Weight of the external Air; and a violent Circulation occasion'd by any Passion of the Mind, causes the same Ebullition or Effervescence as in Fevers.

By the Rarefaction of the Air, the Serous Humidities are exhaled by Perspiration; and by the stoppage of this, either Pains, Fevers, Defluxions, or Cachexies are produc'd; the continual Flux of this Humid aerial Part, is necessary to prevent Putrification in our Humours. This is usually called the *Ventilation* of them; for as the stoppage of the Fumes of wet Hay

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occa-

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occasions an actual Fire, so the too free Evacuations of these aerial Particles, over-cool our Bodies, and weaken them.

3. The greatest Effects of the Air is in producing of Animal Spirits, which consist of the purer *Lympha*, impregnated with a fine digested elastic Air. The Glands of the Brain prove that some *Lympha* is strain'd thro' them into the Nerves; and because none comes forth upon cutting the Nerves, the greatest part of it must be aerial; by which I express the light fluid elastical Mixture of Air, Water, and the light Oily Parts of the Animal Juices, produced out of our Nourishment by Fermentation in the Stomach, and a long Digestion in the Blood-Vessels; and whilst
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it remains in the circulating Mass, it is properly call'd the *Vital Spirit*; but in the Nerves, the *Animal*, as it is the immediate Instrument of the Soul; and this does more immediately receive the Impressions of Hot and Cold in our Skins, and is variously affected, according to the change of Weather, and the pressure of the Air. These aerial Spirits are fit to represent the Agitation of the external Air in Sands; the Motion of the Oily Particles of Smells, will easily rarifie the aerial Spirits, and thereby violently affect the whole: This gives Tension and Motion to all the Muscles, and frequently circulates into the Blood again.

Windy moist Air hinders Perspiration, by altering the Tension of
b 2 the

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the Skin, or the Pressure of the outward Air, and by causing an Ebullition in the Humours; for in Fevers the Perspiration is very much stopped; and when the Blood is in a confused Motion, and quick Circulation, by an Inflation of the inward Membranes, the Skin is contracted.

External Cold hinders Transpiration in weak Bodies, where the Fermentation is low; but it helps it in the strong, as all the *Northern* People experience, who are more lightsome; and their Bodies weigh less in cold Frosty Weather, by reason of a more plentiful Perspiration; and that the Change of Air from Hot to Cold in the Summer, hinders Perspiration about lb. j. and this produces Fevers and Distillations,

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ons, when we change our Clothes too soon: This *Perspirabile* retained, makes the Spirits uneasy, till it is evacuated again by Urine, Stool, or Sweat within three days.

We experience, that in our Bodies being heated, cool Air stops Perspiration; yet it is as certain that an excess of Cold heats strong Bodies, and makes them really lighter.

I have described the Effects of Fire, Water, and Air in our Bodies, because they very much alter the Perspiration; and it is plain, that the Element of Earth taken in our Food, supplies part of the *Perspirabile*, and alters the Excretion of it, according to its different Qualities.

From the time of our eating we perspire unequally, that is, about
b 3 lb. j.

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lb. j. in the first five Hours, and from five to twelve lb. iij. and from twelve to sixteen but lb. fs. By this Observation of *Sanctorius*, 'tis evident, that our daily Food must supply the Matter transpired; that till there has been a full Digestion in the Stomach, and a Sanguification of it by Circulation, no considerable quantity perspires. And from this Observation it is easie to make a Rule for our Hot bathing and Exercise, That the Body will perspire more by them, after five Hours, which time the Meat is digesting in the Stomach; and that Cold bathing twelve Hours after Meat cannot stop Perspiration much, or occasion any Fever or Defluxion by shutting up the Pores, the Perspiration being finish'd.

The

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The liquid part of our Diet is the greatest and heaviest, and the solid lightest, being more filled with Air ; and so it is in our Excrements ; in the space of one Night we perspire insensibly forty Ounces or more. The quantity of Urine is about sixteen Ounces ; and the hard Excrement but four Ounces.

The quality of the Meat alters Perspiration ; copious and crude Meats, as *Melons, Cucumbers, Mushrooms*, make the Body heavier ; and all the vaporous and thin or fermented, lighter.

Thin Meats perspire about forty Ounces, as Mutton does ; but the thicker, as Swines Flesh, eighteen Ounces, and in the space of a Night.

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Fastig

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Fastings perspires as much ; which shews, that in good and convenient feeding, we perspire the eighteen Ounces from our antiquated Humours, and about twenty two from our new Diet.

The *Flatus* in our Diet is, as *Sanctorius* affirms, *rude quoddam perspirabile* : and there are two parts of Perspiration, the one is flatulent aerial, the grosser part is serous ; but sweating is altogether unnatural, unless we eat or drink more than is necessary.

The preservation of our Health requires, that we should add as much to our weight as we daily lose, and that we should return every Morning to the same weight again.

By

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By weighing before and after sensible Evacuation in a Morning, we find that if our Diet amounts to lb. viij. in a Day, lb. v. passes off insensibly; and that exceeds all the other sensible Evacu-
uations.

We then account our selves most healthful, when we perspire every Day alike; and *Sanctorius* assures us, that we should live to extreme old Age, if our Bodies in the four Changes of the Year were preserved of an equal weight; but in the beginning of *Autumn* the weight of the Body increases, and that makes a Ferment for Winter Tertians; and from the *Autumn* Equinox till the *Winter* Solstice, we perspire less lb. j. every day; and then we begin to perspire more till the Spring Equinox;
and

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and he observes that in the *Summer* our Bodies weigh less by lb. iij.

In the hot Air of *Summer*, our Bodies are of less Strength; therefore in *Summer* it is necessary to concenter our Strength and Spirits by Cold bathing: And there is not any more certain way to preserve our selves from this dangerous inequality of weight, than by these kind of Cold Baths, which by frequent use make the Skin less subject to the sense of Cold, and consequently to an unnatural Contraction, to stop Perspiration, when we suddenly find the Air to change from Hot to Cold; or to spend too much of our Strength, when it changes from Cold to Hot.

That

That cold Water renders the Skin callous, or, as *Pliny* calls it, car-
neous, is apparent by the Skins of
Fishermen, who can indure all the
Extremities of Weather, the thick-
ness of the Skin making it unca-
pable of different Tensions: But
all the tenderness we keep our selves
in, makes the Skin more sensible of
Air, and more subject to contract
or relaxe, and thereby transpires
inequally.

The Causes which stop Perspira-
tion are,

1. After eating, the Circulation
goes more inwardly, and the Sto-
mach and Guts are more tinged
with Blood, they growing more
warm by their fermenting Con-
tents, may occasion the Humours
to flow thither; and their Contra-
ction

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tion upon the Meat may stop the circulating Humours there; and for this reason eating in the Morning, in the time of the greatest Perspiration, is improper, till after twelve Hours, when it is over. Abstinence hinders Perspiration.

2. All Evacuations by vomiting, purging, venery, stop Perspiration, by turning the Circulation from the Habit of the Body, and may be improper when Perspiration is necessary.

3. Water-drinking hinders it; and cool, viscid, acid, mucilaginous, styptic Diet is neither easily digested, nor perspired.

4. The Passions of Fear and Sadness, by stopping the Circulation hinders our Transpiration; and therefore *Hypochondriacks* cannot be cured,

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cured, till their Bodies are made transpirable by temperate Baths, and humid Diet.

5. The pituitous *Cacochymia*, the serous, tartareous, or flatulent Constitution, and old Men, and all in whom there is a weak Heat, perspire least.

6. Cold Air and Water, tossing in Bed, Wax, Oil, Fat, outwardly hinder Perspiration, and ruine malignant Ulcers.

The Inconveniences which attend the stoppage of Perspiration are Pains, Fevers, Windiness, Lassitude, Tumours, Gangrenes, Erysipela's, Sciatica's, Fluxes by Urine or Stool, and the Body is heavier.

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The Causes of too great a Perspiration will cure the Stoppage of it; and are as follow.

1. All hot, vinose, acrid, aromatic, salt Tastes in Diet, the actual Heat of Tobacco, do injury to the Head and Spirits, which require Cool things; that Heat over-digests the Humours in the Stomach, and occasions a quicker Circulation, and febrile Rarefaction of the Blood, whereby it produces great Defluxions of *Serum*; it depresses a preternatural Heat on the solid Parts and Spirits, if the Constitution be hot, choleric, salt, viscid, or putrefactive; and Tobacco can be only proper for the Cold Constitutions, as the serous, mucilaginous, and windy. I have often observed Smoaking the Cause of
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Consumptions, and Scurvy, and
Defluxions.

Hippocrates tells us, that the frequent use of hot things, makes the Mind effeminate, the Nerves weak, the Spirits torpid, and occasions *Hæmorrhages* and *Deliquium's* of the Spirits. This seems to me an occasion of the Vapours in Men and Women, which come by the use of too hot Liquors and Diet, with high Sawces. Many drink Tea, Coffee, and actually warm Liquors, which put us to continual Sweats, and evaporate the Spirits; but *Pliny* observes, that no Animal drinks hot Liquors besides Mankind.

2. Hot Baths promote Perspiration, and so does hot Air: The warming of Beds; and the sitting
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by the Fire, and keeping in the Air of a warm House, disposes us to sweat; which being, as *Sanctorius* says, an unnatural Evacuation, they weaken the Spirits, and the Stomach, fill the Head with Vapours, occasion Defluxions, softness, and flaccidity of the Flesh.

Many hot Clothes, and wearing Flannel, promote Perspiration too much, and beget a Lassitude, which proceeds from less Strength, as as well as more Weight in our Muscles.

3. The violent Exercise of the Mind evacuates the aerial insensible *Perspirabile*; but that of the Body evacuates the serous *Perspirabile*, and that diminishes the Strength. Eating too much, makes Heat, and violent Exercise, always make the
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Perpiration visible ; but the invisible is only natural and healthful, and that which follows a perfect Digestion.

Too much Exercise kills more than too little, because of the Accident of stopping the Pores unwarily by cold Air.

Going into cold Water after violent Exercise, *Sanctorius* condemns as dangerous ; for by Exercise the Humours are much rarefy'd ; and by sudden Cold the heated Humours immediately coagulate ; and for this reason we must not Exercise before cold bathing, tho' the Antients prescribe it, and practised it. And the Ingenious Dr. *Clayton* of *Wakefield*, (to whom for his Observations on St. *Mungus* Well, I am very much obliged) gives

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me an account in a Second Letter, that the *Americans* make sweating-Ovens on the side of the Banks of their Rivers, which they heat as we do our Ovens, and when cooled again, they put the Patient to sweat in them for Fevers; and in the height of his Sweat, he runs into the River, and dives over Head; and these Ovens the Doctor has seen in *Virginia* and *Maryland*.

This Practice being against the Reason of our Philosophy, and the Inclination of our tender Patient, it will not so readily prevail, tho' Experience stands on its side; neither would I recommend a Practice very hazardous, to which nothing should persuade me, till I am satisfy'd of some extraordinary Advantage

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Advantage by it, in curing some desperate Distemper.

The Passion of Anger, Joy, as well as Exercise, enlarge the Circulation outwardly, and thereby propel the *Perspirabile* outwardly; and they also enlarge the Expansion of the Animal Spirits in the *Cutis*, to open the Pores thereof; so a Net, by only holding it gently, opens its Meshes, but by stretching of it, they close more.

4. All hot Constitutions and *Cachymia's*, such as the Scorbutic, the Choleric, the Salt states of Humours, perspire too much, their Bloods are like a Jelly, and the Habit of the Body dry and thin.

In hot Countries, and the hottest Season, and Youth, these Constitutions suffer most; the *Perspira-*

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bile is more acrid in these Constitutions, and in Summer; and if this be retained, it produces Malignant Fevers in Summer; for Perspiration hindered, produces a Putrefaction; and nothing hinders that more than a large Ventilation; for Gangrenes are cured, and all Tumours, by restoring Perspiration: But all these Constitutions are fittest for cold Baths, and receive Injury by hot Baths.

In Sleep we perspire about lb. iij. but in Watching about 2 Ounces; the Body will fully perspire by being ten Hours in Bed; and we find our selves more lightsome in the Morning, because our Bodies are really more light, by the loss of the weight mention'd.

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The way to know what Perspiration is natural, is thus; if after a larger Supper we find by weighing in the Morning fifty Ounces to have perspired in twelve Hours time; and if we observe our weight in the Morning when we eat nothing at Night, and that be twenty Ounces, we must endeavour by the use of the several Causes which promote or hinder our Perspiration, to reduce it to come near the middle, betwixt fifty and twenty Ounces, viz. thirty five Ounces: And this will preserve our Health to a Hundred Years, as *Sanctorius* affirms; who also assures us, That that Health is most stable, which alters little in Perspiration.

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Hot Regimen If by the hot Regimen I have mention'd, as Brandy, Spirits, strong Wines, smoaking Tobacco, strong Ale, hot Baths, wearing Flannel and many Clothes, keeping in the House, warming of Beds, sitting by great Fires, drinking continually of Tea and Coffee, want of due Exercise of the Body, by too much study or Passion of the Mind, by Marrying too young, or by too much Venery, which injures the Eyes, Digestion and Perspiration to a fourth part, and breeds Wind and Crudities, heats the Blood, and weakens the Nerves; for all the Effeminacy, Niceness, and Weakness of Spirits is produced in the Hysterical and Hypochondriacal: I hope my Counmen will pardon my Freedom of Correcting these Vices or Errors, when

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when I shew them the only Remedies to prevent or cure these Disorders in their Bodies and Minds, which is by hardening their Bodies in the experienc'd cold Baths, first at *Buxton*, for the most tender, and old infirm Persons; and afterwards at *Holywell*, or *St. Mungus-Well*; and the drinking of the Mineral Waters in Summer, will prepare their Stomachs for frequent drinking cold Water at other times, by which all hot Constitutions will receive more benefit, than by Tea, Coffee, Brandy, Spirits, or strong Liquors and hot Baths.

Tacitus gives us the reason why the German Children injoyed the Strength of their Parents. *Sera juvenum Venus, eoque ienxhausta pubertas.*

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*Dominum ac Servum nullis educationis
deliciis dignoscas.*

A Languor Lassitude, and more weight, are Signs of immoderate Coition; old Men are made colder by it by the loss of Spirits, and heavier; but young Men hotter and lighter.

I do not persuade my Reader to change those Errors of living, without having first done so my self; for by leaving off strong Liquors, and all hot Diet, Teas, Coffee, &c. and by Water-drinking, and bathing at *Buxton*, I have procured to my self better Health, and more Hardiness, than I have enjoy'd for many Years before: And by the long use of this cold Regimen, I believe we may reduce our Bodies to an equal Perspiration;

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spiration ; if we often weigh our selves in the time of cold bathing every Morning, we shall find the most natural and healthful Degree of Perspiration ; and we need not fear the stopping of our Pores suddenly by cold Water, for that for the present will strengthen our Natural Heat, and cause a more plentiful Perspiration : And by *Sanctorius's* Scales he found the Body to weigh less after bathing in cold Water : And that part of the *Perspirabile* which passed too much by the Skin, is either hindred from being bred in the Body, or else passes by Urine ; for the more the Perspiration is promoted, the less are the sensible Evacuations, and *e contra*.

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The Inconveniencies and Signs of the Perspiration too much, are languor of the Spirits, flaccidity of the Flesh, the quick Sense of cold Air, and Shivering with it, and a coldness of the external Parts: The aerial *Perspirabile* retained, disposes to Anger and Joy, but the serous to Fear and Sadness. All the hot Regimen and hot Baths have preceeded the profuse Perspiration. It is *Sanctorius's* Assertion, that those who perspire too much thro' the Passions of the Mind, are hardly brought to a due Perspiration: for too much Motion of the Mind hurts more than that of the Body.

I have more fully reckoned up the Causes and Signs of the stopt or profuse Perspiration, that by the use

use of the hot or cold Baths, we might regulate all Excesses, and by different Baths, make the Rules of *Sanctorius* practicable, in maintaining an equal just weight of our Bodies, and that the Addition by Diet, and Subtraction by invisible Perspiration, may be proportionable and healthful.

That I might farther incourage the use of Cold bathing, I will give an account from *Jones*, of what he writ concerning *Buxton-Baths*; and from the rest of our *English* Writers, which mention that and other cold Baths.

Hollingshead, concerning *Baths*, commends *Buxton-Baths*, and says, *St. Vincent's Well* at *Bristol*, and *Holywell*, have the same Virtue.

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He mentions *King's-Newnam* near *Coventry*, and calls the Water *Aluminous*, and that he found it to taste like Alum, but not unpleasant in drinking. There are three Wells, the biggest riseth out of a Hill, and from thence the Water is carry'd to divers parts of the Realm to be drank: It cures the Palsie, dimness of Sight, dulness of Hearing, the Cholic and Stone, old Sores, green Wounds: It Petrifies by gathering about Oak or Ash Sticks, fine Sand. At first Entrance it is cold, but after a while it warmeth, giving an indifferent Heat; no Man hath sustained Injury by the same: The Virtue thereof was found 1579. And the Fame of this Water in *Hollingshead's* time, equalled that of *Bathe*.

Speed's

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Speed's Geography mentions these Wells, which he says are Sovereign against Imposthumes, Stone, green Wounds, Ulcers,; and he says it Petrifies.

Cambden describes the *Newnam* Springs, near the River *Avon* in *Warwickshire*, as Fountains strained thro' a Vein of Alum; and that the Water carrieth both the Taste and Colour of Milk; and that it was reported to cure the Stone, and procureth Urine abundantly, and cures green Wounds. With Salt it looseth, and with Sugar it bindeth. And from these Experiments we have the hint of using *Sal Mirabile*, and *Polychrestum*, to increase the purgative Faculty of our Waters.

Speed

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Speed mentions *Buxton-Wells*, and saith, out of the Rock at *Buxton*, within the compass of eight Yards, nine Springs rise, eight of them warm, but the ninth very cold; these run from under a fair square Building of Free-stone, and about sixty Paces off receive another hot Spring, from a Well inclosed with four flat Stones, called *St. Ann's-Well*: Near unto which, another Cold Spring bubbles up. The Report goes amongst the by-dwellers, that great Cures have been done by these Waters; but daily Experience sheweth, that they are good for the Stomach, and Sinews, and very pleasant to bathe the Body in it.

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Hollingshead mentions *St. Neots*, fifty Miles from *Cambridge*, where there are two Springs, the one fresh, the other salt: This is good for Scabs, Leprosie; and the other for Dimness of Sight; and these were very famous, and found out 1579.

The Lord *Bacon* mentions the deficiency of imitating artificially the natural Baths, by dissolving the Salts, Sulphurs, Vitriol, in common Water. I believe we may try to imitate them; and the quantity of the Minerals must give a similitude of Taste to the natural Waters; the Heat must proceed, as in the Earth, from actual Fire: And the Quantities of the Contents described by those who have evaporated the Mineral Waters,

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ters, shew us also what quantity of the aforesaid Minerals we should dissolve.

Dr. Lyster observed $\frac{3}{4}$ ij. of Salt in lb. viij. of a Salt Spring-Water. And Pliny says, *Sextarius salis cum quatuor aquæ sextariis, salissimi maris vim & naturam implet.* And this may be the proportion of common Salt in Salt Baths.

In England we do not yet use the Copper-Waters, as the Ancients did, to drink; and we want also the use of the Salt Baths, which are very much commended by Pliny; and divers other bituminous Waters and Baths. In this Enquiry we have not yet equalled the Ancients, nor in our accounts of Cold Baths.

Pliny,

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Pliny mentions the *Albulæ* near Rome, which healed Wounds, *Egelidæ hæ*, *sed Cutiliæ* in *Sabinis* gelidissimæ, actu quodam corpora invadunt, ut prope morsus videri possit, aptissimæ stomacho, nervis, universo corpori.

He mentions the *Spiariæ Ficis*, *Conceptus mulieribus representat*, item in *Arcadia flumen elatum*; and that the Fountain *Linus* hinders Abortion. And the like Virtue we may attribute to *St. Winifred's Well*, and other cold Springs, which stop all Fluxes out of the Body.

Vitruvius describes the Nature of many Springs and Fountains; and observes, that there were hot Springs without any taste of Minerals, and that Heat was from actual Fire, maintain'd by a bituminous

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or mineral Earth. We observe the Water in some Springs so rarefy'd or inflated, as to be thrown up as it were by a Wind. He imputes the Coldness to Salt Petre dissolved in Water, and their petrifying Waters are coldest. He observes the cold nitrous purging Waters at *Cutilia*, which diminish the Tumors of the *Strumæ*. He observes the Virtues of the sulphureous Waters, to help the Nerves, the aluminous the Paralytic: But that all Mineral Waters, incessant Diet, affect the Nerves and Limbs, by an Inflation, & *nervi Inflatione turgentes contrahuntur, & ita aut nervicos, aut podagricos efficiunt homines.*

Pliny and Vitruvius mention the Tastes of Waters; that the River *Hemera* in Sicily, divides it self in-

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to two Parts, and that near *Ætna* is exceeding sweet; and the other part, by running thro' a Salt-Mine, very salt: And others *uncti oleo erumpunt*, as the River *Lyparis* in *Cilicia*: These Bitumens they used instead of Oil, for Lights; and they had the Consistence of either Oil, Tar, Pitch; and they mention one Bitumen of the smell of a Citron at *Carthage*. Many miraculous things are related by *Pliny* of Waters, as their inebriating Quality, and poysonous, and the changing the Colour of the Hair of Animals. And *Vitruvius* mentions the smell of Metals in their melting; Gold has little smell, or more sweet; Silver is a little sulphureous; Lead, Brass, Iron, more fœtid. He mentions the bitter or ingrate Taste of

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Copper; and that the other Tastes of Metals were evident by the Water, to which they give a Tincture by standing.

I desire leave to recommend the following Baths to the Consideration of our Country Practisers, the Virtues of which are the same as the other Cold Baths have; but the Specific Virtue depends on the Mineral.

At *Willowbridge* in *Stafford-shire*, there is a bituminous Water, of a pleasant Oily Taste, somewhat bitterish: It is the smoothest Water I ever tasted or felt. It seems proper as a bituminous Cold Bath outwardly and inwardly.

The bituminous Baths are useful for the Itch, Leprosie, Tetters, outward Ulcers; it discusses, and is good

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good for Pains, Gout, dulness of Sight, heals Wounds, smoothes the Skin, helps Lameness and Contraction of Sinews, by its Oiliness. Inwardly it cures Coughs, Asthma's, Hoarseness, Stone, Gravel, sharpness of Water, Gripes, Dysentery, by its Oiliness: And by its dissolving warming Quality, it opens Obstructions of the Liver, Womb; and eases inward Pains, Tumours, King's-Evil.

I distill'd a clear Oil out of the Water; and, in short, I do recommend this Water, as one of the best bituminous Baths I believe in *England.*

At *Godsall* in *Staffordshire*, there is a cold Sulphur-water, formerly famous for Leprosie; and this I may recommend for a Cold Sulphureous

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phureous Bath, and may be used as a Sulphur Medicine.

There are divers Salt Springs in our Country; and these, if mild, may be used both inwardly and outwardly.

There is an exceeding cold Spring in *Sutton-Park*, called *Routhen Well*, which the Country use for Cold bathing in the Itch; and it may serve the uses of Cold bathing very well. Small Cottages were built there. The Taste of it is smooth and Oily.

We have many Chalybeate Waters very useful, at *Lichfield*, *Polesworth*, *Bromage*, and *Blurton*; and those who would try the utmost of Cold bathings, must begin with *Buxton*, then go to *Holywell*, and at last try *Willowbridge-Bath*, which
will

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will Oil and lubricate the Skin;
and by this we imitate the Cu-
stom of the Romans and Grecians,
who used to anoint with Oil after
bathing.

THE

THE Touch-stone of Medicines; discovering the
Virtures of Vegetables, Minerals, and Animals,
by their Tastes and Smells. In two Volumes..

The Preternatural State of Animal Humours descri-
bed by their sensible Qualities, which depend on the
different Degrees of their Fermentation, and the Cure
of each particular *Cacochymia* is performed, by Medi-
cines of a peculiar Specific Taste, described. To this
Treatise are added two Appendixes. *First*, About
the Nature of Fevers, and Cure by particular Tastes.
Second, Concerning the Effervescence and Ebullition
of the several *Cacochymia's* on which all Inflammati-
ons, Tumours, Pains, and Fluxes of Humours de-
pend, especially those in the Gout and Astma, and
the particular Tastes of the Medicines curing Ebulli-
tions are described.

By Sir John Floyer, of the City of Lichfield, Knight.
M. D. of Queen's-College, Oxford.

send for Dole's materia medicam
w^{ch} he treats of Radix Hypocist:
agana.

Dole's materia medica

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*An Inquiry into the right Use
and Abuse of the Hot, the
Cold, and Temperate Baths
in England.*

C H A P. I.

*In which the Nature of Baths and their
several Species are examined, and
explained by their sensible Qualities.*

THE Occasion of my Inquiry
into the Nature of Baths, was
some Observations I former-
ly made at Bathe, about 3
Years since, and what I thought ob-
servable in a late Visit I made to Bux-
ton's Bath in Derbyshire.

I found these two *Baths* of different Use in curing Diseases ; and I observed great Irregularity in the Use of both of them.

I observed that many Persons came to the hot *Baths* at *Bathe*, without any good Advice ; or they who came with it, indiscreetly and imprudently managed their Bathing (by using of it without due Evacuation, or continuing of it too long) that they went from thence worse than they came ; some having inflam'd their Blood, and thicken'd its *Serum*, so as to renew their Rheumatic Pains : Others died of Fevers, Consumptions, Convulsions, Bleeding, Imposthumes, not long after. I frequently reflected on what is also observed by the Ancient Writers of the particular Injuries done by Bathing ; that healthful Persons receive much Prejudice by hot *Baths*, which colligate the Humours, and occasion Fevers, and Defluxions of Humours, Pains, Inflammations, Obstructions.

These Instances may convince all considering Persons, that we ought not to use

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use hot *Baths* for Pleasure, especially where there is a fulness of Humours, and a hot Constitution; and since the following Accidents frequently happen upon Bathing, they will certainly overbalance all the Pleasure of it. These Inconveniencies come by hot *Baths*, Thirst and Fevers, by raising the natural Fermentation or Rarefaction of our Humours into a putrify'd State, making them viscid and salt. Hence come the Pains and Rheums occasioned by hot *Baths*, and the Inclinations to much Sweating, and profuse *Hæmorrhages*. Many Diseases of the Brain are produc'd by hot *Baths*; as, *Apoplexies*, *Sleepiness*, *Vertigo*, *Convulsions*, *Asthma's*, *Debility of the Sight*, *Swooning*, a general *Lassitude*, and a *Dejection* of the Appetite, and *Torpor* of the Mind, and *Effeminacy* of the *Flesh*. Hot Bathing binds the Body, swells the Belly, if many Obstructions and inflammatory Cholicks be there; and makes the Stomach weak, by diverting the Circulation of Humours to the Habit of the Body, and often occasions Vomitings, and Coughs, Hick-

up, and many other Inconveniences I shall hereafter mention.

My Journey to *Buxton-Well* this last Year discovered to me a *Bath* very different from that at *Bathe*, it being a very temperate *Bath*, producing no Sweating after it, but rather a Coldness; and upon a due Consideration I found the *Bath* very useful in many Cases, in which that of *Bathe* did Injury; as in Consumptions, hot *Scorbutick* Pains, and all *De-fluxions* of Humours, and *Bleedings*, and all the hot inordinate *Flatulencies* of the *Animal Spirits* in *Hysteric* and *Hypocondriac* Cases. And these I found used by the Northern Countries, chiefly for Pleasure, without any Method or Preparation, or Regularity of Diet; and as the *Baths* at *Bathe* are commended like a Medicine of some eminent *Quack*, for all Diseases, tho' they require a contrary Remedy to cure them; so these in the Opinion of the Northern People, cure all their Diseases, whether depending upon a hot or cold Cause.

By the Observation of the different Nature of the two mentioned *Baths*,

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as well as the Contrariety of the Diseases incident to Animal Humours, I did believe that some short Treatise would be useful, which explain'd the Nature of the several kinds of *Baths*, and directed in what particular Case each might be useful, so that Physicians might not send Persons to improper *Baths*; nor they incur great Hazard of their Healths by an indiscreet Choice, or Use of a Disagreeing *Bath*.

I always believ'd our Senses were sufficiently acute to discern what was useful both to a diseas'd as well as a healthful Body: For by them, we, as well as the Brutes do examine both our Medicine and Diet.

We perceive that all Odours shew the hot Temper of our Medicines and Meats; That the cooler emit no Odour considerable.

The Taste more evidently discovers the Virtue of all Liquids.

The Astringent Taste discovers a Cooling, Condensating, Repelling, Obstructing Quality.

The Acid attenuates, incides without Heat, and opens and repels.

The Acrid heats, attracts, discusses.

Bitters cleanse, open, attenuate thick Humours, without manifest Heat.

Watery Tastes cool ; thicken, obstruct, mortifie, or stupifie.

Salt Tastes dry without great Coldness or Heat, astringe ; they preserve from Putrefaction.

Sweet Tastes concoct ; mollifie, rarifie, or ferment.

Oily Tastes moisten ; mollifie and ease Pain.

By the Experiments on particular Tastes, and the observable Modes of our Tastes, old Physicians, *Galen*, *Ægineta*, *Orobasis*, *Ætius*, as is evident by their Discourse upon the Tastes of Medicines, discovered the several Temperaments of Medicines, and the Effects of them ; and by these Tastes they most particularly examin'd the Virtues of all Medicinal Waters and Baths. By them the most barbarous Nations, the *Asiatic*, *African*, *European*, and other Nations found out the Virtue and

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and Use of their *Baths*, naturally produc'd in each Country, before any great Knowledge was got in Chymistry, Physick, or any general Philosophy.

There was no other Physick for many Years than Bathing, Exercise, and Diet at *Rome*. They believed Bathing to empty all Superfluities ; and that Bathing cured all Diseases depending on an ill Diet, and external Causes, by evacuating the *Fumosum* and *Humidum*, which ought to pass by Transpiration. It corrects the Heat of our Humours, and discusses the Salt Putrid Humours, producing cutaneous Effects ; as, the Scab and Leprosie.

We have many Senses to help in our Enquiry into the Nature of *Bath Waters* : The Touch inform us of those that are hotter than the natural Heat of our Humours ; which are the hot *Baths*, the Heat of whose Water seems to me most probably to depend on some Neighbouring subterranean Fire (as *Baccius* has most probably conjectur'd by the burning Hill near the Neighbouring Baye;) And he

describes Places in the Field, called *Sulphuraria*, where the Water really boyls as in a Caldron; And he imputes the different Degrees of Heat in the *Bath* Waters to their being nearer to the Chymnies or Channels of Fire, when they are very hot; and that the tepid Waters are more remote from them; and he affirms that some Waters are so hot at *Puteoli*, that they can depend on nothing less than actual Fire for their Scalding Heat; because they burn, and blister, and excoriate as scalding hot Water does: And *Baccius* further observes, *in quibusdam locis ignis & aqua cum fervore emergunt.*

The Neighbourhood of *Vesuvius* and *Ætna* to the hot *Baths* in *Italy* and *Sicily* give a sufficient Demonstration of the Cause of the Heat of them; and by Parity of Reason we may guess that the same Cause gives the like Heat to *Baths* of colder Climates, tho' the Actual Fires are not so evident there.

There are in those Countries Sudatory Caves, where there is a violent actual Heat; and in some Places the

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the BATHS in England. 9

Noise of boiling Waters ; all which prove the Neighbourhood of Actual Fire, which has sufficiently manifested it self by frequent Eruptions, which burnt to Ashes the most Celebrated Buildings of those *Baths*.

The fervid *Baths* in the first Degree are intolerable by their Excess of Heat excoxiating.

The second Degree of hot *Baths* are very hot, yet fit for *Baths*, which are either more distant from the actual Fire, or made more mild by the Mixture of the cooler Minerals ; as, *Nitre*, *Alom* or cool *Springs*. These have very good or bad Effects, according as they are applied to divers Constitutions and Diseases which I will describe in the following Chapter.

The hottest Bath we have, is the long *Bath* at *Bathe* ; and the King and Queen's *Bath* ; and the Cross *Bath* is more mild, but much too hot for a temperate *Bath*, the Effects of which will be describ'd in the next Chapter, to heat and dry, and not moisten.

The

The second Degree of *Baths* which our Sense of Feeling discovers is the temperate *Baths*, which are near the natural Temper of our Humours; and these may be useful for the Preservation of our Healths, as well as our Pleasure, and the curing of some cutaneous Diseases; such are the *Baths* of warm Water, which mollifie, discuss, concoct, strengthen, and warm.

These are good in *Ephemera's*, *Thirst*, *Lassitude* and *Itch*.

The third Degree of *Baths*, of which our Sense of Feeling informs us, is the cold *Baths*, which chill our Humours, stop the Pores, and strengthen our Limbs and Spirits.

The fourth does not only discover the Heat and Coldness of Water, but also the Roughness or Driness and the Softness of Waters.

That all these kind of Bathings are very useful, the Experience of all Ages testifies; and they always applied them to different States of our Humours: For if we be too hot, our Reason, as well as Experience, prescribes

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scribes cold Bathing in *Ephemeræ's* and excessive Heats; But if our Bodies be chill, and pained, we use hot *Baths*; and for Pleasure, cleansing the Skin, and Preservation of Health, the most temperate *Baths*.

The other Senses which inform us of the Medicinal Nature of the Minerals dissolv'd in the Fountain Waters, are our Taste, and Smell and Sight.

Fountain Water as such, only lubricates, cools, and mollifies; but the purging and altering Quality depends on the several Minerals dissolv'd in Fountain Waters. These Mineral Waters we artificially imitate, by dissolving several prepar'd Minerals in them; and by the Taste of the natural Mineral Waters, we may be best directed to the nearest Proportion and Mixture of our Artificial *Baths* in Imitation of the Natural. There is scarce any two Mineral Waters which have exactly the same Mixture of Minerals, as we may observe by their Variety of Tastes and Virtues.

Our

Our Taste shews us that all Mineral Waters dry : For they evidently dry the Tongue and shrivel the Skin : Tho' most *Baths* have compounded Tastes, yet some one is most predominant ; and by that I will distinguish the several sorts of Mineral Waters and *Baths*.

1. The sulphureous foetid or stinking *Baths* : *Sulphur* is dissolv'd in these *Baths*, which is like the Soot of a Chimney, or Fuliginous Vapours from the inward inflamed Parts of the Earth. Metals burned, send forth the Steam of *Sulphur* ; and that is known by its *Putor*, and the Taste of Sulphur, is evident in many *Baths*.

The Sulphureous *Baths* are generally hot ; but there are many Sulphureous Waters evidently cold and stinking ; for which reason we believe the actual Heat depends not on the Sulphur alone.

These Sulphureous *Baths* agree with the cold *Cacochymia's*, and cold solid Parts ; but are injurious to all hot Constitutions, Fevers and Defluxions of Humours ; in which we prescribe to abstain from Wine, Venery, the Sun and *Baths*. It

the *BATHS* in England. 13

It was observ'd by *Ætius*, that sulphureous and bituminous *Baths* very much offend the Head if it be pumped with them.

The sulphureous Waters may be imitated by boyling *Hepar Sulphuris*, or *Sulphur Flower* in some *Lixivium* ; or a Mixture of Sulphur and Filings of Iron moistened with Water till they grow warm ; or by boyling the *Pyrites* in Water ; the Quantity of the Water must be so much as to give it a Taste like o- the Sulphur Waters.

2. Bituminous *Baths*.

Bituminous Waters are known by their *acutus Nidor* (for the Smell of *Bitumen* is foetid) by this their Acrimony and Bitterness, they discuss and heat ; but they mollifie more than the sulphureous *Baths* ; because *Bitumens* have an Oily Viscidity in them.

All Places that burn in the Earth, have either a *Bitumen* or *Sulphur* in them.

Bituminous Waters that have only the *Nidor* of *Bitumen* in them, may safely be drank to heal, dry and mollifie

life; they heal Ulcers, cicatrize Wounds; but they fill the Head, cause Sleep, and hurt the Senses and Eyes.

These may be artificially imitated by boyling the *Pissasphaltus* Stone in hot Water, such as is got in *Shropshire*, out of the Coal-Pits near *Bentall*; or the Matter of the Tar-Wells, may be mix'd in *Baths*; or Ointments for mollifying and discussing, and the Pitch made of those Stones in Emplasters. No Bituminous Waters are yet eminent with us in *England*; tho' I have been inform'd, that an Oil like *Turpentine* has been distilled from *Willow-Bridge* Water in *Staffordshire*, which has been much commended for external Maladies.

It may be consider'd how far *Barbados* Tar, or the common *Petroleum* may be used for mollifying and discussing *Baths*, by boyling them in Water to make a *Bath* like the *Hydroleum*.

I have heard of a Bituminous Mud in *Lancashire*, and in other Places, which would supply the *Illutamentum* used by the old *Romans* in External Parts.

Dr.

the BATHS in England. . 15

Dr. Plot examined the Water in *Willow-Bridge Park*, which gives an Oily Taste to the Glasses long used ; and that upon Distillation, the Oil runs over upon the least Heat before the Water, of a bright yellow Colour ; and this must be of a Balsamick Quality inwardly, and have the Effects of a cold Bituminous Bath outwardly : And if this Water were heated by boyling in a Furnace it must have the Virtue of a hot Bituminous Bath.

Carduan believes Bitumen to contain Sulphur and Niter ; 'tis certain there is an Oily Part and an Acid in it.

Speed mentions a Well at *Itchford* in a private Man's Yard, whereon floated a thick Bituminous Scum, not yet sufficiently experimented.

3. *Arsenic Acrid* Waters, which burn, dry, absterge and depilate ; they erode the Gums, hurt the Stomach, loose the Teeth, destroy the Horns and Hoofs of Beasts : Such is the Nature of *Arsenic* it self, which burns, eats, breeds crusts, like actual Fire.

Baccius

Baccius commends the Waters mixed with *Sandaracha*, if much diluted, for cleansing the Breast from purulent Matter, and helps the *Suspirious*, and short breathed.

We imitate these Waters by a Mixture of *Arsenic* and *Calx viva*, boyled for a depilatory Medicine.

All Acrid Waters corrode, penetrate, putrifie, and absterge. *Pliny* mentions a Fountain in *Germany*, on the Sea-coast, of sweet Water, which occasioned the Teeth to fall; *Stomace Medici vocabant, & Sceleterbe ea mala*. These Putrefactions in the Humours were occasioned by that Fountain, which must depend on some such Mineral as *Arsenic*; and the Herb *Britannica* was it that cured it, which was not Scurvy-grass; but by the Description, some kind of *Docke*.

4. Salt Lixivial Baths from Ashes, as the *Calces* of Stones; especially Lime, Marble or Metals burnt.

Where there are Natural Fires in the Earth, there these may be observed to be dissolved in the Neighbouring Waters; and these have the Virtue of *Lime-Wa-*

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Water, together with a Vitriolic Tincture from the calcin'd Metals.

These *Baths* have the Virtues of a *Lixivium*, being inwardly *Diuretic*, and externally drying in *Hydropical* Tumours and Ulcers, and may be imitated by a *Lixivium* of Vegetables, or *Lime-Water*.

5. Salso-acid *Baths*.

Baths of Sea-Water are most in Use ; which taste bitterish and salt, with a Dryness and Acrimony , by which it absterges and dries all Ulcers, Scabs, scald'd Heads , Itching and Leprosie, Corns, Tumours and Pains of the Limbs. It kills all Insects, Lice, Worms ; and we bathe in it for the Cure of the *Hydrophobia*: These also prevent all Putrefaction in *Gangrenes* and putrid Ulcers, or venomous Bites. These salt Waters dry the Hands, and make them rough ; and for that Reason are good for Over-Fatness, and prevent *Cachexies* and *Dropsies*.

The salt Waters do not only dry and astringe ; but heat, discuss, absterge and cleanse.

C

They

They cure too great a *Plethora* of Nutriment, or *Hydropical Serous Tumours*, according to the old Rule, *Sale, Sole, & Siti curatur Hydropisis*.

Salt-Waters are good for all Inflammations in *Baths*, as the *Gutta Rosacea*, the Heat of the Feet, Inflammations of the Stones.

It discusses the Inflation of the Womb, and is excellent in the Cure of the *Tympany*.

If the salt Waters be boyl'd and pump'd, they cure all *Catarrhal Effects*, Deafness, Stupors, Tinglings, Pains of the Head, Spasms, Resolution of the Nerves. *Optimum est in aquâ marinâ assidue natâre*, was *Ætius's* Advice for the loss of Smell.

It helps the Dimness of the Eyes; being warm'd, it is proper for Clysters in *Cholicks*, *Sciatica* and *Cholera*; and in the *Mola Uteri*, let Women swim in salt Water, or apply the Steam of it in which *Uterines* are boyl'd.

The *Spuma Matris* used for Warts and other Diseases, is only the Sea-Salt naturally coagulating on the Rocks.

Pliny

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Pliny observes the Saltness of Rains; and that in *Autumn* they are most salt; but least in *Winter*.

Inwardly, Salt binds in Diet, by drying; but being us'd more plentifully in Medicine, it purges, by pricking the Intestines; and a large Quantity of it vomits: It purges by *Urine*, as all Salts do; and is very useful in Clysters. In Diet it promotes the Flux of the *Saliva*; and thereby, as well as by promoting Fermentation, it helps Digestion. The Sea-Salt which is dissolv'd in the Bath-Waters, naturally excites Appetite, cleanses away all hot Humours from the Liver, Spleen, Womb, Kidneys and Bladder, and maybe usefully drunk all Summer in *Nephritic* Cases, for the Ardor of *Urine*.

They are usually prescrib'd from lb. j. to lb. iij. and so they help the *Dysentery*, kill Worms, cure the Putrefaction of the Mouth and Gums: They also cure the Flatulencies and the Pitu- itous, and Serous *Cacochymia's* in the *Cachexies* and *Dropsies*.

C 2

They

They cure the Arthritic and Gouty, being used in *Baths*, and drank; and very much strengthen the Limbs, and preserve from the Cholic. They stop the *Gonorrhœa*, and *Fluor albus*.

Salt-Waters are much commended for the *Asthma*, and they cure the Inflations of the Womb, bring out the *Mola*, or *Dead Child*. They help the *Hypochondriac* Inflations, cure the Humidity of the Eyes, the *Oedemata* of the Limbs, and all their Pains.

All Salso-acid Medicines by their cleansing Faculties are proper for all the *Cacochymia's*, whether hot or cold: For Salt neither heats or cools much; but preserves the present State of whatsoever Liquor it is mix'd with; but salt Waters are not without some Inconveniencies: For the Sea-Water offends the Stomach, by its Acrimony: Wormwood much helps the Sea-sickness. The Sea-Water much offends the Eyes. Salt Liquors purge, and salt things fill the Head, and dispose to the Scab, corrupt the Blood, breed a *Dysentery*, or *Consumption* and *Scurvy*, as is manifest in

Ma-

the *BATHS* in England. 21

Mariners ; but Navigation is commend-
ed for some Diseases ; as, *Consumptions*,
Hæmorrhages, *Leprosies*, *Dropsies*, *Apople-*
xies, a cold windy Stomach, old Pains of
the Head ; and these it may cure by
causing Vomiting. Sailing into *Ægypt*
was prescrib'd, not for it self, but the
Length of the Journey.

We may easily imitate these Wa-
ters by dissolving Salt in hot Water
to a demi-Taste : For *Baths*, or Drink-
ing the Sea-water will yield the
best salt *Bath* ; and the next to the Sea-
water, is the Steam of the boyling Salt
at the *Wiches*, which cures many Pains
and Humours.

There is a great Saltness both in the
Bath-waters at *Bathe* and *Buxton*. The
Degree of Saltness in both of them
seems much alike. If there be any dif-
ference, I think *Buxton* more salt than
the other.

Tho' Dr. *Lister* found not 3 ij . in two
Gallons of the Water, yet if I were to
make an artificial salt Bath, 3 ij . of com-
mon Salt or *Sal Armoniac*, seems not too
much ; and the Use of these seems very

C. 3 pro-

profitable. The Waters of *Apani* are so salt, as out of them they make common Salt.

The salt Springs contain from a 4th to a 9th of Salt ; and the Sea, as *Pliny* affirms, is one Part of Salt to four of Water. He commends Sea-water in the *Quartan*. He commends the *Thallasomeli* for purging pleasantly, which is made of equal Parts of Rain and Sea-water and Hony-botled.

Ætius commends swimming in the Sea-water for the *Elephantiasis*, and for the Itch, twice in a Day, before Dinner and Supper.

6. Salt Nitrous Waters.

They taste salt, bitterish, and earthy-nauseous ; by which they become Purgative and Diuretic, as all Salts be ; and thereby cleanse away Gravel in all *Nephritic Cases*.

These are proper inwardly for all the hot *Cacoehymia's*, to carry off the sharp salt Choleric Humours, without Gripes or raising any Effervescencies, to occasion new Defluxions in the Gout, *Asthma's*, Coughs, Inflammations.

There

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There is a Roughness in all the Waters at *Epsom* and *North-hall*, and other *North-hall* *English* Purging Waters, which will curdle Milk; and this therefore cools all our rarify'd Humours; and they strengthen the Stomach and Viscera by it, and the Gums. *Stomach* *Gums*

Nitre dissolv'd in cold Water makes it colder and fitter for the cold Immersion; and by the Solution we must imitate Nitrous Baths to cleanse the Skin. The Ancients us'd to rich it with *Nitre* in their Baths.

Niter, *Ashes* and *Bitumens* make the Waters of a bitter Taste.

We observe a Bitterness in *Ashes* and *Soot*, and all burnt things. Sweet becomes bitter by Heat; and the Blood does *bilescere*, or become bitter, when over-heated.

In every Gallon of Water there is six Drachms, or eight or ten of the *Sediment*, which is compounded of a stony Matter, and common Salt, and *Nitre Calcarium*.

In Feverish and Choleric Heats these Waters are most agreeable, and in all

Defluxions on the Head, or Breast, and Hydropical Tumours with a *Hætick*, and the *Schirrus* of the *Viscera*. They are proper in all Inflammations; *Stone*, *Scabs*, *Tettars*, hot *Cholicks*, and all hot Pains; *Scorbutic Rheumatisms*, *Nephritic Pains*, Heat of *Urine* or *Suppression*, *Jaundies*; In Distempers of the Head; as, *Mania*, *Melancholia*, *Head-Aches*, *Vertigo*, in the *Itch* and Binding of the Body.

These Nitrous Purging Waters have a mix'd Salt of *Nitre* and common Salt, by which they purge.

The artificial bitter Salt of *Epsom* Waters is bitter, and hath a remarkable Pungency. ʒj. dissolv'd in ℥j. of Water, imitates the Taste of the natural Water. It is usually prescrib'd ʒß. to ʒj. dissolv'd in ℥iiij. or any Liqueur.

This Water is proper for Vomiting and Heat in the Stomach, dejected Appetite, Cholicks at the Stomach, Heart-Burning, Hypochondriac and Hysterical Inflations, Worms.

This is injurious in *Fevers*, *Green-sickness*, *Paralyticks*, Women with Child, the

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the *Hydropical*, where the native Heat is decay'd, and in all violent Evacuati-
ons and *Hæmorrhages*; as the *Cholera*
Morbus, Suppression of Urine from a
great Stone or Ulcer.

7. The *Acid Waters*.

These taste cool, and sowre or sharp,
by which they cool, penetrate, absterge,
excite Appetite, cleanse the Kidneys;
they make lean, and keep long incor-
rupt; and they resemble Vinegar in
Virtue, and kill Worms, and resist Pu-
trefaction.

The Acid seems to be from Sulphur,
and may be joyn'd with Nitre, Salt,
Copper or Steel.

We find the *German Spaw-Waters* to
taste sharply Acid, as if it were sulphu-
rated, which none of our chalybeated
Waters do.

VVe imitate this sort of VVaters by
Gas Sulphuris, whether for outward or
inward Use, putting so much into Foun-
tain-VVater as to make it tart.

Vitruvius commends *Acid Waters* for
curing the Stone. VVe by Experience
find, that Vinegar dissolves Egg-Shells,
Lead,

Lead, Copperas, *Margarites*, and burnt Flints ; and this explains the dissolving Virtue of Acids in soft Stones. Outwardly we use Fomentations of Vinegar for the Gout.

8. The *Styptic* VVaters, as such, do strengthen the *Viscera* ; and the Ancients call'd them hard or rough VVaters, and believ'd them to be from *Alom* ; but our Moderns call it a *Nitrum Calcarium* ; and such is the Nature of our Well-Waters, and all our *Bath-Waters* have a Roughness.

There are these several sorts of rough Waters.

1. Petrifying Waters which are called *Gypseæ*, which contain a *Gypsum* or *Lapis Calcarinus* ; as the *Albulæ* in *Italy*.

Mineral Stones have an earthy, drying stopping Faculty. They look whitish, and have a thick *Sediment* after Evaporation : They stop Sweat, contract the Skin, and all the Vessels and Pores, and stop *Diarrhæa's* and *Diabetes's* ; but are not commonly wholesome : For *Gypsum* it self has a drying choaking Faculty,

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culty, coagulating Humours, stopping the Urine and Breath, and produces Swelling in the Throat; but they cure Ulcers.

Cool Waters from Marble are compounded for curing Sterility in those Women who miscarry through Laxity of the Uterus, and a hot and moist Fluxion.

Dr. *Lister* observed in 60 lb. of a petrefying Water $\text{z ij } \beta$. of the *Lapis Calcarinus*, and z j . of Salt.

2. The *Aluminous* Waters cool and astringe without Acrimony. The *Aluminous* Taste strengthens the solid Parts. by its Stypticity, and stop all Evacuations of Humours.

All Astringents are of an earthy Nature, cool.

In *Baths* these are proper for the Itch, Leprosie, Ulcers, *Apthæ*, Ulcerate Gums, and *Tonsillæ*, *Hæmorrhoides*, *Herpes*, *Ulcers* of the Wombs.

They stop all *Hæmorrhages* of the Lungs, Womb, Abortion, too much Sweating, and *Varices*, and Vomitings.

But

But these hurt the Breast, as all Astringents do, both in drinking and bathing, particularly in *Asthma's* and *Peripneumonia's*; they injure the Voice, and those that be very thin.

Aluminous Waters curdle Milk by their Stypticity, and so they may alter, fix, precipitate, or curdle the Humours of Animals. They will not bear Soap, but fix on the Salt, and separate the Oil from it, by which they find they will fix all the Animal Volatile Salts; and the Spirit of Urine turns *Alom-Waters* milky. By these Experiments we know *Alom-Waters*, and demonstrate their Virtues.

3. The *Vitriolic Calybeate*, which are Astringent with an Acerbity.

These by their Stypticity strengthen the *Viscera*, and are therefore good in Fluxes, Spitting of Blood, *Cholera*, *Whites* and red *Diabetes*, *Abortion*, *Nocturnal Pollutions*, Obstructions of the *Spleen*, *Liver*, *Cholic*, *Hætic Fevers* and *Quartans*. They cure Vomiting, Stoppage in the Kidneys, Womb and Bladder.

They

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They cure the *Hydrophobia*; for which let them drink through a Cloth, that they may not see the Water: They are also proper for Scabs, Ulcers, Consumptions; and cure all the hot *Cacochymia*, the choleric, salt, viscid, muriatic, vitriolic, and putrefactive State of our Humours; but they are injurious sometimes in Fluxes of Humours, in Coughs, *Asthma's*, *Gouts*, *Schirrhus's*, and *Fevers*.

These Chalybeates are most specifically proper for the Stomach and Spleen.

These have a mix'd Quality, and operate according to the Virtue of the prevailing Quality of the Mixture: For the Chalybeate heats and opens, tho' the Waters cool.

These we imitate by putting 3j. of *Vitriolum Martis* to two Quarts of Water or 3j. of *Dr. Willis's Steel* infus'd into a Pint of Water, thus;

Rx. *Chalibis Willis* 3j. fiat *Infusio frigida per triduum*, in aq. lactis ℥. j. colaturæ, capiat coch. j. in haustu aquæ quolibet mane

mane per mensem unum vel alterum in Æstate.

The Water in which Gold is quenched, leaves some Impression from the Heat of the Fire, but no Metallic Vitriolic Taste; neither does Silver heated and quenched.

The Chalybeate Waters are from the Pyrites, and are good Eye-Medicines, being Acrid and Styptic in Taste.

Raddle, Bole, *Lapis Hæmatitis*, *Smirum*, *Schistos*, have something of the Iron Tincture: *Lapis Hæmatitis* gives a dry cooling styptic Quality to Water: *Lapis Schistos* is found in Iron Mines.

All Waters that look red, or tincture the Earth with a Rust, have another.

Other Waters incide, and are Diuretic, absterfive, and differ according to the Metals amongst which they grow.

Marle makes Water styptic, and makes Cyder into which it is thrown of a Vitriolic Taste. Marle-Waters bind much.

Our

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Our Salt Springs are observ'd by Dr. Lister to turn with Galls.

4. The Copper Waters have an Acrimony with an Acerbity, as other Waters have.

Copper Waters are the *Atramentosa* call'd so by the Ancient Writers, *Omnis Atramentosa aqua tenet Aëris naturam.*

They are very styptic and hot, or acrid; They dry, thicken and contract, and are unfit for drinking; They corrode the Stomach, and purge by their Acrimony.

Calcritis is the Stone; *Calcanthum* is the Rust of it.

These Waters astringe less than the Iron; but have a Virtue of Healing and drying, and cleansing by their Acrimony. Outwardly they cleanse the Leaprofie, discuss Oedematous Tumours, stop Bleeding both by the costic and styptic Quality; and by the same they cure the Scab and scald Head.

Ætius recommends Copper-Waters for the Mouth, the *Tonsils*, *Uvula* and Eyes, when ulcerated: They are' also use-

useful for the Diseases of the Breast, Senses, Sterility, dejected Appetite, *Fluor albus*, Scab, *Asthma*, Ulcers, Dropsie, *Apthæ*, *Flatus*,

Chrysocolla grows in Copper-Mines, and partakes of that Mineral; as, *Lapis Armenius* and *Lazuli* do.

By these the Waters may be impregnate: *Chrysocolla* may be wholly dissolved in Water, and give a hot drying absterfivè Quality to them, sometimes offensive to the Stomach.

The *Factitious Borax* is made from *Nitre* and *Urine*, agitated in a Copper Mortar. And this is the *Factitious Chrysocolla*. Dioscorides.

Chrysocolla is the Rust of Copper and Gold, as the other is of Lead, *Ærugo* of Copper, and *Ferrugo* of Iron.

We may imitate Copper Waters by putting some sort of the Vitriol to them in such a Quantity as may give the Tastes of the Natural Waters impregnated with Copper, which is about ʒj. or ʒij. to every Gallon of hot Water.

Punice found in any Waters is a Sign of a Copper Mineral.

All

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All purging Waters have either *Nitre*, or *Salt*, or *Sulphur*, or *Copper* or *Bitumen* in them, and most a Mixture of them, and are proper for different *Cachymia's*.

Cardan commends Copper Waters for the *Atra bilis*, if they have a Mixture of Gold, and are moderately hot, as *Viterbium*.

In *Italy* and the *Piperinae* in *Germany* these purge, that Humour; these clear the Senses, conduce to Cheerfulness and long Life.

Dr. Grew affirms, that Spirit of Nitre affus'd to the *Calamy-Stone*, and both put into Water, give a very acerb and very bitter Taste like the Chrystals of Silver.

That the Taste of Copper is bitter, ingrate, *Vitruvius* affirms.

5. Lead-Waters are very cooling : For Water agitated in a Lead-Mortar, and any Ointment in the same manner, becomes more cooling.

These Waters dry Ulcers, the Leprosy and Cancers, and the Piles, and are proper for all those Cases in which we use Lead-Medicines; but they are e-

D. steem'd

steem'd injurious to the Breast, the Nerves, Stomach and Intestines, which they oppress, and seem heavy, and they are said to weaken the Joynts.

Saccharum Saturni dissolv'd, may imitate these Waters, about 3 j. to every Gallon; but the Taste must determine the Quality, till we have exactly adjust'd the Strength of the Artificial and the Natural Waters by the Similitude of Taste.

The Water at *Holy-well* is believed to come from the Lead-Mines, and to receive its extraordinary Coldness from thence; by which it becomes a famous cold Bath in many Diseases.

6. *Quick-silver Waters.*

Such have been observ'd in *Spain* at the River *Minium*, where the Waters are hot and sulphureous, with a native *Minium*. These Waters are impregnate with Sulphur and the noxious Vapours of Quick-silver. The factitious *Cinnabar* may probably imitate the native; because they both contain Sulphur and Quick-silver; and either may be boyl'd in Water to supply these natu-

ral

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ral Baths. These are used for Scabs and all Ulcers, and will do whatsoever Sulphur and Quick-silver can effect: But these Waters are describ'd as acrid, by *Baccius*, who recommends them for the Itch Leprosie and pocky Ulcers.

7. *Antimonial Waters*. Those are reckoned amongst the Steel Waters, styp-tic and astringent; and must be also accounted sulphureous.

How far the Decoctions of *Antimony*, or the Preparations of it may imitate the Natural, may be easily try'd.

Pliny recommends *Antimony* for a Medicine for the Eyes.

8. Waters are mentioned by *Baccius* impregnated by the Minerals of Gold and Silver. Those we cannot expect in our Country, where we can only quench Pieces of those Metals in saline Water, to which they only give an Impression from the Heat of the Fire, and probably rarifie the Air contain'd in fair Water; but they give no metallic or vitriolic Taste to the Water, as I have try'd by tasting the Water; But the Metals must be purely refin'd; but the natural

Waters must have a Vitriol, by which they are esteem'd useful to the Splenetic and heal Ulcers.

9. Tin certainly impregnates some of our Waters in *England*; but I have not any Account of their eminent Virtue, which must have the Medicinal Virtue of that Metal.

VVe cannot but admire the great VVisdom as well as Kindness of Providence in preparing so many Mineral Medicines for the Use of the Diseased Part of Mankind. The great Creator only, knows the infinite Variety of Diseases, Constitutions, and the great Necessities of Mineral as well as Vegetable Medicines. Them he has prepar'd in as great a Variety as the Diseases and Constitutions themselves.

For which I need no other Instance to prove my Assertion than the Variety of the *Baths* and *Mineral Waters* I have mentioned; which are so eminently impregnated with Variety of Minerals, Salts, Vitriols, Sulphurs, Stones, &c. which evidently prove a distinct Nature of every one of those Waters; and to
 apply

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apply these, the great and wise Architect has requir'd no more of Mankind but to use his Senses to discover by their Impression how each Mineral Water affects their Tastes, Smells, and alters their Bodies upon Man's external Experiments made of them.

By these means our Reason, and Sense, and Experience directs us to a right Use of these Waters; therefore nothing can be more irrational, as well as prejudicial to Mankind, than to use any one *Bath*, as the narrow-Soul'd Physicians do for all sorts of Diseases.

Nature seems so concern'd to unlock the Mysteries of her Chymistry, that by the Colours of some Waters we may discover their Contents, as well as by their Tastes.

Okre makes the Mineral Waters yellowish, *Sandaracha*, *Stybiu*m, *Mehuteria*, *Molibdena*, livid and raddle, reddish *Nitre*, clear *Gypsum*, whitish, the *Sediment* after Distillation. The Curious of this Age have tasted and observed their Colour, and Quantity, and made many Experiments with them to observe their

Virtues; but since there are so great a Variety of Mineral Tastes mixed in *Bath Water*, and many of them so volatile, as to evaporate upon Distillation, I cannot confide in these Experiments as certain Trials to discover the Contents of *Mineral Waters*; But in the curious Tasting of them by a Palate Experience and internal Preparations; for that Sense takes the Object in a perfect State; but after Evaporation, all the Volatile Mineral Particles exhale; so that by that Means it is impossible to discover the true Contents of Mineral Waters, which have so great a Variety of Tastes, and Virtues, that scarce any Two have the same Mixture of Minerals in them.

By the *Microscope* we have in this Age attempted to improve the Knowledge of the Ingredients of Mineral Waters, by observing the Figures of the ChrySTALLIZING Salts: And this Method may succeed well enough where there is only Salts dissolv'd in a Mineral Water, and that but of one sort; but since most Waters have o-
ther

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ther Minerals besides Salts, and frequently a Variety of Salts; such as the *Microscopical* Observations want a Name for; and therefore call it *Sal sui generis*.

For this Reason I should never trust the *Microscope* for giving a full and satisfactory Account of any Waters, without an Appeal to our Senses of Taste, Smell, Feeling, and many practical Experiments, both inwardly and outwardly. All the Advantage by *Microscopes* is, to confirm our other Senses, and help them to discover the Figures of the Mineral Salts which affect the Taste.

C H A P. II.

Concerning the right Use and Abuses
of the hot Baths.

HO T Baths both by being drunk
or used outwardly, heat the Hu-
mours, and raise the Pulse, and quick-
en the Circulation, Agitation of the
Blood, and its Compression by the
Pulse, the Heat expands the Aerial Spi-
rits contain'd in the Humours, which
is the immediate Instrument of Dige-
stion, Fermentation, and the Feverish
Ebullition of the Animal Humours to
produce the several kinds of Deflu-
xions.

I call those hot Baths which have
very hot Water, and some Tincture
from the Sulphur or Bitumen.

The VVaters at Bath have not only
a considerable actual Heat, by which
they produce their Effects; but they
have

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have a Saltness to cleanse, as well as a Roughness, to strengthen. The Sulphur in them, has also particular Effects by its discussing *Fætor*: And I remember the *Cross-Bath Pump-Water* tastes evidently Vitriolic.

The Roughness in the Water depends on the *Nitrum Calcarium*. The Saltness on common Salt, which is in double Proportion to the *Nitre*. The *Lapis Calcarinus* is double in proportion to the Salts; but the other evaporates by boiling.

From all these sensible Qualities, we may deduce very easily all the Effects of the hot *Baths* at *Bathe*; as well as the Injuries they do when they are used improperly.

1. The Actual Heat makes these *Baths* agreeable to all Constitutions that are Pituitous, Serous, Cold, Flatulent, or have any Acerbity in their Stomachs, or Cachexies in their Bodies, or are very cold fat Constitutions. To all these Diseases of the fluid Parts the hot *Baths* are contrary, and effectually alter them.

2. In

2. In an *Obesity*, or too full a Habit, we evacuate the *Succus Nutricius* by sweating in these *Baths*.

3. These hot *Baths* by rarifying the Humours and relaxing the Parts, open all the Obstructions in the Blood-Vessels or Nerves, dissolving the scirrhus, serous, œdematous and flatulent Tumours and the Obstruction of the Chyle-Vessels in the Tumours of the *Abdomen*.

The Reflux of the Blood is promoted by these hot *Baths*, at the latter end of all Inflammations, of any inward or out Part, in the *Varices* and *Hæmorrhoides*.

4. The Secretion of Humours thro' their Glands is promoted by hot *Baths*.

First, In the *Jaundice*.

Secondly, In *Hypocondriac* Obstructions of the *Spleen*.

Thirdly, In the cooler *Scrophule* not inflamed.

Fourthly, In the Secretion of the Animal Spirits through the Brain in Stupidity, their Expansion through the Nerves in the Palsie and Rickets.

Fifthly,

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Fifthly, These hot *Baths* cure the Suppression of the Excrementitious Humours by agitating the aerial Spirits in them, as well as by opening the Pores by their actual Heat.

1. In a Suppression of Urine.

2. Want of Stools by Purgings, if drank to two or three Quarts: to which usually common Salt formerly or of late *Sal Polychrestum*, *Sal Mirabile Glauberi*, *Sal Cathart. Epsom* are added.

3. The Stoppage of Transpiration is immediately help'd by these hot *Baths*, and the Pains and Fevers depending on it if used in the Beginning.

4. The Suppression of the *Menses*.

5. The Retaining of a *Mola*.

6. The Suppression of the *Hæmorrhoides*.

7. The Tumours of the Limbs and *Anasarca* are discuss'd by Sweat.

Sixthly, Hot *Baths* promote the Motion of the Animal Spirits through the Nerves and their due Expansion.

1. In Palsies, Apoplexies, Lethargies, towards the latter End.

2. In

2. In Blindness, or *Gutta Serena*, after due Evacuations.

3. In Deafness, being pump'd on the Ear.

4. In Loss of Speech, and Taste, and Smell.

5. In the want of Appetite.

6. In *Venere languida*.

7. In Difficulty of swallowing.

Seventhly, Hot *Baths* relieve all Pains depending on the cold *Cacothymia's*, or external Accidents; as Wounds, Bruises, Fractures.

1. Old Head-Aches. 2. Pains at the Stomach. 3. Cholicks. 4. Tooth-Aches, Ear-Ach. 5. Strangury, from the Gravel, and the Pain of the Stone. 6. Joynt-Pains; as, the *Sciatica*, *Rheumatism*, and old Gouts in cold Constitutions.

In all these Pains it eases very much, if no Fever nor Inflammation attend them, if the Fluxion of Humours be over, and the Body well cleansed by bleeding and purging.

Eighthly, There is a deterfivè Faculty in the *Bath-Waters* from the Salt and Sul-

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Sulphur, by which they are also Diuretic; and by their *Stypticity* they heal all Ulcers.

As, 1. A *Varica* and *Pthysis*.

2. A *Dysentery* and *Tenesmus*.

3. Ulcers of the Eyes, Ears, Stomach, Mouth, Womb, Arms, Gums.

4. Ulcers of the *Viscera*, Liver, Spleen, Kidneys, Lungs, Ulcers of the Glands in the *King's-Evil*.

5. *Gonorrhæa*, or Ulcers of the *Prostate*, *Elephantiasis*.

6. The Itch and spots in the Skin.

Ninethly, Hot *Baths* cause a Revulsion of Humours, and so stop the Evacuations.

1. By Vomiting.

2. *Diarrhæa's* and *Fluxes* after strong Purges.

3. The *Fluor Albus*.

4. Incontinence of Urine thro' Weakness.

Hot *Baths* turn the Circulation outwardly into the Skin; And in Poisons these *Baths* by rarifying the Humours and opening the Pores, occasion the Circulation to be enlarg'd more outwardly.

Tenthly,

Tenthly, Hot *Baths* discuss the Humours in the Pores of the Skin, as in the Itch, Leprosie, and are good in the Use of the Psyllothra.

Eleventhly, Hot *Baths* may be used in a depauperate state of the Spirits, depending on pituitous, serous, flatulent *Cacochymia's*, and in all Flatulencies of the Womb after Miscarriages.

Purging is proper for old Diseases affecting the Head, Nerves, and Joynts. The Top of the Head must be pump'd in *Cephalea Hemicrania*, Memory lost, Melancholy, Lethargy, *Stupor*, Deafness, Blindness. Let it be done in the Morning, and it is usually prescrib'd at Midnight for 20 Days, but in *Spasms*, *Palsies*, Trembling of the Head and Hands, Pump the Neck and spinal Marrows.

This Pumping only agrees with cold Diseases and cold Constitutions; but for the hot Head no bituminous or sulphureous Waters do well; but the Aluminous and Fountain or cold Waters.

The End of the Spring and Beginning of Summer in the best time for
Ba-

Bathing in hot *Baths*; because the Summer following continues the Pores open. Autumn Bathing occasions the Pores to be so open towards Winter, as to render all Persons subject to the Changes of Weather, and makes them sensible of Cold all Winter. And this let my Country-Men consider, who are used to the contrary.

Bath-Waters are best drank when most free from Rain; but the best time is in *May*: For the Waters heat, and cause Transpiration.

Hot Bathing and drinking Waters is improper for hot Weather.

The Injuries done by the hot *Baths* are,

I. The Vehemency of Heat in the *Baths* are over-dry, heats body, and thickens their Humours: Therefore they are unfit for Children, and delicate tender Persons, whose Flesh is easily dissolv'd by excessive Heat, which also over-drys and decays old Men, dissipating their languid Spirits; and all thin languid Persons are much decay'd by them; and the thin Hypochondriac are over-dry'd by

by their Heat, and made subject to *Ephemera's*, *Fluxes* and *hectic Fevers*.

2. Hot *Baths* are injurious to choleric Constitutions, by exciting intermitting Fevers and *Ephemera's*.

3. This sort are injurious to all viscid Constitutions of Humours, which produce Rheumatisms, Inflammations and Pains during the Effervescence of Humours, and the Defluxions.

4. The Saltness of Blood is encreas'd by hot Bathing, which raises the Digestion of Humours, and promotes a violent Circulation of them.

But the drinking the *Bath Waters* is not injurious to these Constitutions; because they cleanse away the Cholera, dilute the Viscidity, and wash away the Saltness of Humours.

6. The Putrefaction of Humours is promoted by hot *Baths*. For this Reason we condemn such *Baths* in Fevers intermitting and malignant, in the *Hydrophobia*, and Poysons and Pox. Some Minerals are dissolv'd in that Water, convenient for the Itch, Leprosie, scald Head, such as Salt and Nitre which kill
Worms,

Worms and Lice that are the Effects of Putrefaction.

7. In a general Leanness tho' they spend the *Succus nutritius* ; yet they open the obstructed Pores, and restore the Circulation to a Paralytic Member in an Atrophy of it.

In very great Fulness of Humours, hot Bathing occasions the Breach of a Vein, by rarifying the Aerial Spirits in the Blood.

If Thirst be troublesome, Bathing encreases it, and Drinking allays it.

8. The Defluxion of all Humours is promoted by hot Baths, which colliquate or rather rarifie the Aerial Spirits in our Humours, and open the Glands through which they may flow. And for this reason we forbid hot Baths during all Defluxions in Catarrhs, Gout, Asthma's or Pains ; Inflammation and Cephalic Diseases depending on a Defluxion, Ephemera, or intermitting Fevers, and in all sorts of Inflammations and hot Pains, with Fevers, as, Erysipelas, Phlegmons, Cholicks, Head-ach, Strangury, Stone, Gout, Rheumatism, Quinsie, Pa-

rotis, Inflammations of the Piles, Intestines, Stomach, Liver, Spleen, Kidneys, Phrenitis, Ophthalmy, Inflammations of the Lungs, Pleura, Breasts of Women, Testicles of Men, and all running Ulcers succeeding them. All Ulcers and Inflammations receive Prejudice in the Beginning by hot *Baths*, and also by drinking the Waters very hot; but in the Declination, the *Bath* discusses the Inflammation and cleanses the Ulcers; but all necessary Evacuations ought to precede.

Hot *Baths* ripen all inward Imposthumes in the Lungs, Liver, Spleen, Kidneys, Womb, Intestines, Bladder. These *Baths* are injurious in all Putrefactions; as, Fevers, especially *Hætics*, *Apoplexies*, *Phrensies*, *Carbuncles*, *Cancers*.

Hot *Baths* excite Venereal Pains, as all Fevers do, and make all Coughs and Catarrhs worse; for which we better prescribe cool Diet, Air and cool Drinks, which better agree with them.

9. In all *Hæmorrhages* these hot *Baths* are mischievous; as in that by the Nose, Womb, Anus, Vomiting, or pissing Blood,
and

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and Coughing it up, or in the Hepatic Flux.

10. These Baths are injurious in Fluxes of Humours out of the Body as *Diabetes, Gonorrhæas, Abortions* and too much sweating.

11. They are mischievous in Evacuations of the *Semen* into the Cavity of the Body, as in *Ascites, Dropsie* of the *Thorax, Hydrocephalon*; they promote the greater Flux of the Rheum into the Cavities.

12. The great Expansion of Spirits producing Watching, usual to old Men, and salt Constitutions are made worse by Bathing.

13. The great Explosion of the Spirits in Convulsions is much irritated by the Heat of Bathing; as in *Epilepsies, Hysteric Passions*, and other *Convulsions, Palpitations, Singultus, Coughs, Sneezing*.

14. The irregular Motions of the Spirits in the Brain is promoted by hot Baths. In the *Melancholia, Mania, Hydrophobia*.

15. The Flatulosity of the Spirits is too much rarified by hot Baths, in *Vertigoes,*

Asthma's, Tympanites, Incubus, and Hysterick Tumours.

Sulphur Baths, and the *Bituminous* offend hot Spirits by their strong Smell, and so occasion Fluxes.

Hot Bath-Waters cool by Accident, by opening the Pores, for evaporating of the Heat; or if they purge, or be very Diuretic, and have a Tincture from Lead, Nitre, Alom.

Hot Baths after Meat occasion Rigors, Horrors, Fevers; and after Bathing we must not eat till all Disorders are over, and then the Stomach will not be disorder'd, nor the Head fill'd. Sleep after Bathing, and Abstinence digests and evacuates Humours, and composes the Disorders of Bathing.

Vini potus à Balneo tanquam venenum habendum, was the Observation of the old Physicians. A Horror at the Beginning of Bathing, which may be produc'd either by the hot or cold *Baths*, by the Constriction of the Pores, or Fulness of Humours, shews the Profitableness of that Bathing.

Those

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Those that have Fevers, Pains, Fluxes, or any great Evacuations are not fit for hot *Baths* ; and we must take care of the Injuries of Weather after Bathing.

We are more secure in Night-Bathing, when after the Exercise of the Day, we bathe, and sup after Bathing : And the Gentlemen who go to *Bath* for Pleasure may practise this.

The Time of continuing in the *Bath*, is an Hour, or according to strength ; and after 7 Hours, the ancient Prescription was to return to the same. Young Men may bathe oftener than old Men ; who are too dry ; Once in a Day, or every other Day is enough for them.

The salt, nitrous, sulphureous, aluminous *Baths* purge, by which they cure Obstructions and Dropsies ; and the Drinking the Water is necessary for 14 Days before Bathing.

C H A P. III.

Of Temperate Baths,

THE more temperate *Baths* have only a mild Heat, like that of our Bodies, and are therefore less beneficial for cold Diseases, and less injurious to the Healthful, who use them chiefly to wash their Skins, to temper the natural Heat, to take off Weariness, and strengthen the Limbs; but these *Baths* are frequently prescrib'd by the Ancient Physicians for Preservation of Health after Exercise, in an empty Stomach; and after a Stool in full strength; and they ought not to sweat after them; but they were dryed and anointed, and eat after the Disturbance of the *Bath* was over; and a regular Diet was used for some time after Bathing, avoiding Repletion of Meat or Drink, too much sleep, Watching, great Exercise, Passions,

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ons, Injuries of the Weather ; after Excess and Venery, they avoided Bathing, and after Bathing avoid Wine, which offends the Head.

But these *Baths* have many Physical Uses, besides Cleanliness, and Beauty, and Pleasure, and are observ'd to be useful in the following Cases.

Tepid *Baths* moisten and warm ; if more tepid, they cool and moisten ; if more hot, they heat, and moisten less.

Temperate *Baths* are proper for Children who are moist and hot ; but all Minerals dry them too much.

Wash the Infants after long Sleep, when most empty, and rub them.

This cures their Coughs, stuffing in their Heads, their Scurf and Itching, and breeding Teeth.

In the breeding Teeth the Ancients bathed when the Fever remitted, and prescribed Water-drinking to the Nurse.

Bathing Infants does Injury to their Ruptures.

Since old Age is cold and dry , by hot *Baths* we relieve them, which by their temperate Heat warm and moisten ; and Wine is allowed them after Bathing, and then Sleep. *Ut lavit, sumpsitq; cibum det membra sopori.*

Temperate *Baths* cure all hot *Intemperies*, and are proper for all the hot *Cacochymia's*, the bilious, viscid, vitriolic, corrosive state of Blood, especially if Nitre, Alom and Steel be dissolv'd in them, and are usually prescrib'd for the Cholerick and thin Hypochondriac at the End of the Spring ; but all hot *Baths* injure those Constitutions.

A *Plethora* without a Fever is help'd by Bathing frequently and long in these temperate *Baths* ; and much Exercise is to be used before Bathing as well as Friction ; and after Bathing anoint with hot Oil in these full Bodies.

Dry Constitutions may bathe after eating, and that will feed them : They may bathe again after 4 Hours, and be fed with Asles Milk, and anointed with cool Oils before they be cloathed. The Ancients used this Method to cure the dry

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dry *Intemperies*, and prescribed a convenient Diet, and Friction; and they cured a hot *Intemperies*, if joyn'd with a dry, by Water-drinking.

By *Baths* of temperate Heat we cure *Ephemera's*, which depend on Heat, Lassitude, or Cold; but if a *Catarrh* attend them, that is not convenient till the Declination.

In a Diary of many Days, after three Days, bathe, if no sign of Crudity remains.

Hectick Fevers require temperate and cooling Baths; and unless the Head be put into cold Water, bathing does them no good.

Baths are injurious in Fevers, if there be Pains, or Inflammations in any part, or the Fever be putrid. Sometimes in the Declination, after the concoction of Humours, they may promote Sweat. In these acute Diseases *Rhasis* condemns them. *Nunquam vidi Balnea in aliqua dispositione febricitantibus esse utilia.*

These *Baths* are useful in *Hemicrania's*, and all other Pains; as that of
the

the Spleen; and is very proper in the Declination of Inflammations, as in a Phrenetic, if that Disease has lasted long, and the Body be thin; and the same *Bath* agrees with the Lethargy in the Declination.

These are proper in Melancholic cases, in the declination, where they are to be moisten'd, or nourish'd.

In young Men and Lovers they help the Melancholy.

After fourteen days the Pleuritic may use it.

After the Inflammation and Pain of the Gout is over, and sometimes in the vigour of the Fit, when Watching, and Pain are excessive: But the use of much bathing relaxes the Parts, and excites a new Flux in all Pains and Inflammations, and Rheumatisms, by opening the Pores, and heating the Humours.

Temperate *Baths* help the passing both Urine and Stool, even in Fevers. In the *Cholera* they are good in the declination, and for *Diarrhœa's*.

Dysen-

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Dysenteries, Inflammations from Crudities, the Jaundice, and the Stone, the suppression of the *Menses*, and Strangury from a hot Cause.

They are proper for all Priapisms, and Inflations of the Womb, and that dryness of it which causes Sterility.

It facilitates the birth for them that have hard Labour, by relaxing and mollifying.

It brings away a dead Child, and *Mola*, and false Impregnation; especially a Bath of temperate Salt-Water.

For Poyson from *Cantharides*, we use a Bath of *Hydrolæum*.

It cures all the Diseases of the Skin, Itching, which *Opium* gives.

It helps Ulcers, Scabs, Bruises, Strains, Pimples, wounded Nerves, after the Flux is over, and all Heats of the *Viscera*, and several Parts, by exhaling the fuliginous Vapours thro' the Pores.

Bathing cures Watching, and causes Sleep.

Emma-

Emaciate Limbs must not sweat, but be pumped, or wet with the Water.

These *Baths* help weakness of Digestion, weak Memory, Sadness, Apoplexies, Palsies, and Tremblings after the Flux is over. It cures the Scurvy, and corroded Gums.

In short, these *Baths* open and discuss by their heat; they promote the digestion of the Stomach, the distributing of the Nourishment, the circulation and digestion of Humours, the secretion of the excretory Juices, and discuss all Infirmities out of the Pores of the Skin.

Bitter detergent Baths.

We may make these *Baths* of Marine-Water, and impregnate them with Bean or Lupin-Flower, which is bitterish; or with Fenugreek, to cleanse the Skin, and bitter Almonds.

Briony-Root, or the Bulb of *Narcissus*, are used for bitter detergent *Baths*; and

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and Bran is useful to cleanse as well as Soap.

Anodyne Mucilaginous Baths are made of the Decoctions of *Alibea*, Mallows, Mercury, Linseed, Fenugreek-seed, Fleaban, Violets, Bran, Thistles, Chickweed, Duck-meat; to which may be added *Narcoticks*, Cynogloss, Poppy-heads, Henbane, *Solanum*.

Nutritive Milky Baths.

A Bath of Milk and Water twice in a Day, or else the Decoction of Sheeps-Head, or Capon-Broath, is proper for the Consumptive. Or else a Decoction of Barley, and sweet-Almonds in Water; to which may be added the Cold Seeds; or the Decoction may be made of the whole Gourd, to cool and moisten.

For the *Leprosie* a Bath of Blood is commended.

Wine

Wine Baths.

These heat, strengthen, dry, ease Pains, discuss Swellings, strengthen the relaxed Parts, cleanse Ulcers, heal Wounds.

As the Wine inwardly hurts the Brain, Nerves, and Joynts; so it makes amends to these Parts outwardly: And we experience the *Bath* of Muste to be more useful to the Joynts, by its fermenting heat; and the fervor of the Wine heats, opens, discusses, comforts the Limbs, and removes Pains, and is profitable to *Oedematous* Swellings and Inflations.

Oil Baths may be plac'd under this Title, useful in Convulsions, Pains, Suppression of Urine; the fifth part of the Oil being heated, and added to the rest; and this us'd in a *Tetanus* twice in a Day; but a long Stay in a *Bath* of Oil, does much spend the Spirits, as *Hegineta* observes.

Baths of *Hydrolæum* moisten the dry and weary Members, ease Pains, Head-
ach,

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ach, and Wounds, with Convulsions, Colic, Pains, difficulty of Urine, Wounds of the Nerves, and hard Labour.

The *Cross-Bath* at *Bathe* ought to be kept of a more temperate Heat than it is usually manag'd, that it might have the Benefit above-mention'd; but it appear'd to me of a Heat above that Temper; and is made very hot, to answer the Effects of the hot *Baths*, by letting in hot Water thro' Pipes from other *Baths*: For which reason it becomes very injurious in all the Cases I have mention'd, and particularly to *Plethoric* hot Constitutions; and *Hysterical* Women.

I have sometimes observ'd it moderate; but generally it is abus'd, so that it cannot answer the Design of a temperate *Bath*, fitted for healthful Persons, or the Diseases mention'd.

I could not but observe another great Absurdity practis'd there, which is the drinking the Water very hot from the Pump, to have more of the Mineral-Virtue thereby; for that *Gas* of the
Mine-

Mineral too much affects the Head, and causes Sweats, and is injurious to the *Hysterical, Asthmatic,* and all hot Constitutions.

Healthful Men may bathe according to Custom in moderate *Baths*.

Trallianus tells us, that bathing after Meat does thin Bodies more good than Morning-bathing, if the *Bath* be of a moderate heat; such as that of *Aqua-Dulcis*.

Studying and Sleeping much is very injurious in the use of *Baths*.

Bathing till the Parts begin to swell, nourishes them; but longer continu'd, it wastes them.

The Injuries done by the *Temperate Baths* are the same as by *Hot Baths*, but in a lower Degree; for if the Body be not prepared, Baths produce Fluxes of Humours, especially if there be any inward Inflammation, they are mischievous, or if there be a Plethoric Body, they may occasion an *Asthma, Apoplexy, Vertigo, Convulsions, Pleurisie, Peripneumonia.*

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If any inward Part be infirm, as the Lungs, Heart, Stomach, Liver, or any disposition to the Gout, or any other Flux, these Baths colligate the Humours, and open the Glands or Pores to receive the Flux: It is like applying Fomentations before Evacuatives; these weaken the Spirits by Evaporation; and fill the Head, occasion the *Epilepsie*, *Vertigo*, and other Convulsions.

These Baths ripen all Impostumes, and are therefore dangerous in Obstructions of the Liver, Consumptions, weak Kidneys; and they promote all unnatural Evacuations, as *Hæmorrhages*, *Whites*, *Gonorrhæas*.

In the time of the Plague they occasion the Infection to be more easily taken, and prepare the Humours to receive any other Infection.

Hysteric Women ought to abstain from bathing, which fills the Head.

The *Asthmatic* receive much prejudice by bathing; it ripens the *Tubercula* in the Lungs.

C H A P. IV.

Of Cold-bathing ; the Benefits and Injuries of it : To which is adjoynd an account of the Bath at Buxton in Derbyshire.

THE use of Cold bathing is very Ancient ; for *Pliny* relates that *Carmis*, a *Massilian* Physician, condemned the Custom of Hot bathing, and persuaded the *Romans* to bathe in Cold Water ; in the midst of the Winter, Months during the greatest Cold, he dipt the sick in the Lakes of Water. *Videbamus senes consulares in ostentationem usque rigentes.*

This Cold Demersion was used in *Augustus's* time, by *Antonius Mysa*, and his Brother *Euphorbius*, to astringe the Pores, to unite the Heat, and to strengthen the Limbs ; and *Galen* was so much of their Opinion , that he thought the

Hot

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Hot Baths were only preparatory to Cold bathing; and on that, the greatest Benefit depended.

Bathing in Rivers, and the Sea, was most Ancient for Exercise, Pleasure, and curing Diseases.

A place for swimming in Cold Water was provided for in the *Roman Baths*, and was more Ancient than they.

The manner of the *Romans* was to conclude their Hot Bathing with the Cold Water; which shews the good Opinion they had of Cold Immersion.

Galen's Method of Bathing was thus; first they exercis'd in a Morning; then they enter'd the *Laconicum*, where the Air was warm or hot by the Steams of the Water, or Fire; and there the Pores are open'd, and they sweat; the tensity of the Skin relaxes, and the Humours more rarify'd to pass the Sudatory Glands, thro' which the Pulse being raised by the heat, or the less pressure of the external humid Air, propels the attenuated Serum.

From the *Laconicum* they descend into the *Lavacrum*, or into hot Water, where they sweat as much as they please: And from thence they came to the Cold Water, that what was overheated by exercise or bathing, might there be cooled, and the Strength confirm'd by thickening the Skin, that the innate Heat might not transpire too much, and thereby make the Body cold; for Cold bathing constringes the Pores, and hardens the Body, as hot Iron is cool'd and harden'd by cold Water. By these it is evident, that they invented the Hot Baths to prepare weak Bodies for the Cold. From the Cold Bath they went into the *Tepidarium* or *Apodyterium*, where the Air was tepid, and they were rubb'd from Sweat; and anointed. Afterwards Meat and Drink, and Sleep were prescrib'd.

It was the Custom of the *Germans* to carry the new-born Child to a River, there to dip it in the Water, to strengthen the Body, and to try their natural Vigour; for if it were very weak,

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weak, it often dy'd; for which reason *Galen* condemns this Custom as barbarous and dangerous. This Custom he says is more fit for Beasts, to procure them a hard Skin, insensible of Cold; and he believes it not necessary for Men to have a thick and hard Skin; for according to *Hippocrates's* Observation, a rare thin Skin is necessary for those who transpire out many hot Vapours and Fumes; for if they be retain'd, the Body suffers by them: And a thick Skin is useful against the Injuries of the Weather: Both Excesses are to be avoided; the Skin is not to be thicken'd so far as to hinder transpiration; or to be kept so rare, that by all Accidents of Weather it may be much affected.

Virgil takes notice of the Custom of bathing Children in cold Water, in these Verses;

*Durum à stirpe genus natos ad flumina
primum,
Deferimus, sævoque gelu duramus &
undis.*

F 3 This

This is the Method *Galen* gives for Cold bathing, for the preservation of Health in Persons fully grown, for strengthening the Limbs, and thickening the Skin against the Injuries of Cold, he advises this Method in the beginning of it, in the hottest time of the Year, in the middle of the Day, and in fair Weather, when the Water is not perfectly Cold, but Tepid, and the Person be fasting and empty, then he must use this Bath, having first exercis'd, to excite a natural Heat, to resist the Coldness of the Water: And after Exercise, and Friction, let him *demergere* into Cold Water. The Demersion ought to be sudden, and not gradual, to prevent a Horror.

The Person who must be us'd to Cold Water, ought to be in the midst of the fourth Seven Years, in perfect Health, and to be well rubb'd with Linnen, and after well rubb'd with Oil. The first time the Water must be Tepid, not very Cold; but the second time he may use it very Cold; and

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and at his going out let him be rubbed with Oil till he is very hot. Continue this Three or Four Days; then after an Interval, if he approves of a Second, but not a Third bathing for the same time.

They stay a moderate time in the Water who come out well-colour'd after Friction; but if they be less warm, and pale colour'd, they have staid in too long, which must be avoided.

After Clothing, let the Person rest an Hour at least, and then eat more than he drinks; for after this Cold Immersion, the Appetite increases, the Thirst abates, they concoct better, their Muscles are stronger, and the Skin is more hard and dense.

These Baths unite the Heat, turn the fuliginous Vapours into Sweat, excite the Expulsion of the Excrements, and loosen the Body: It cures Lassitude if used by intervals, and the Heat occasion'd by travelling in the Sun; the *Caninum appetitum ex immodicâ transpiratione.*

Thus far *Galen* has instructed us in the use of *Cold Baths*.

Hippocrates gives us this Aphorism concerning *Baths*.

A *Salt Bath* heats and dries; a *Hot Bath* extenuates the Person that is fasting, but heats and moistens him that has eat: And *Cold Baths* effect the contrary. By which Aphorism we perceive he knew the Virtue of *Cold* bathing; that it warmed and hindred the extenuation of our Body when empty, by closing the Pores, and restraining the evaporation of our Aerial Spirits; but the *Cold Baths* cool and dry them that have eaten: It cools by checking the Fermentation of the Humours, and their rarefaction: It dries by repelling the nutritious Humours from the Skin, as *Hot Baths* are said to plump it up by relaxing it, and rarefying the Humours contain'd in the Vessels of it.

From *Hippocrates's* Aphorisms about the use of *Cold Water* in Fomentations, we may learn the Benefits and Injuries of *Cold Water*; for Fomentations

tions are bathing particular Parts only.

This is the use of Cold Things, or Water; we must apply them to the place that bleeds, or about them; and they may be used to extinguish the ardor and burning of Inflammations, which have a Sanguine Colour at the first, but if the Inflammation have continu'd long, it causes a livid Colour: It also helps an *Erysipela* not ulcerated, but is very dangerous to them that be ulcerated. He also recommends Cold Water to foment the hot Tumours, and Pains of the Gout, or Joynts, which are without Ulcers, and for Convulsions. In these he prescribes the affusion of much Cold Water, which mitigates the Pain, and extenuates the Part; and a moderate *Stupor* allays the Pain.

By these Aphorisms we are plainly taught, that the Cold Baths may be profitable for all *Hæmorrhages*, *Inflammations*, *Erysipela's*, *Pains*, *Gout*, *Convulsions*; and he deals thus Ingenuously in giving an account of the Injuries
of

of cold Fomentations: And the same are of cold Baths.

Cold is injurious to Ulcers, for that hinders the Evacuation of their Sores, and the Nutrition of the Part. It thickens the Skin by contracting the Parts.

Cold hinders pain'd Parts from Suppurating, by checking the Flux of Blood to it. It produces *Livors* or Blackness in the Parts if too long continu'd, by stopping the Circulation of the Blood, and Transpiration of Vapours. It occasions *Febrile Rigors*, from the Irritation of the Nerves, by hot Vapours retain'd in the Body. It occasions Cramps from the same Cause; and the Stoppage of the Circulation thro' the Muscles.

All these Inconveniences happen in Cold Bathing, which I will give an Account of.

Aetius mentions the famous *Albule*, *que sapore subsalse & tactu lactei teporis*. He says they were *Aluminous*, *Sulphureous*, and that by their *Nitrous Salt* they cleanse Ulcers; and that they were drank

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drank the first day three *Hemina's*, viz. thirty Ounces ; the second Five *Hemina's* ; the third Six *Hemina's*, to purge and cleanse : They promote Sweat and Urine, stop Bleeding, strengthen the Parts, stop all Fluxes of Women and Men, heal the Ulcers of the Bladder and Kidneys, prevent Abortions, Fluxes of the Belly, Laxity of the Stomach, Vomiting ; they excite Appetite, cure all hot *Intemperies*, an ill Habit of the Body, and Dropfie, discuss *Flatus*, and cure Cholicks.

Gallen mentions the Injuries of the *Albulæ*, that one by Stoppage of the Skin fell into a Fever by the use of them : And tho' they be eminently petrifying Waters in their own Springs, yet they produce no such Effect in the Bodies of Men.

Ætius commends Cold Baths for curing all Diseases depending on Defluxions of Humours, especially if they have any Medicamental Taste, viz. from the Minerals (of Lead, Iron, Alum, Nitre ; for these are all of them the Cool Baths, as Bitumen, Sulphur, and Salt make the Hot Baths.)

He

He commends the *Albulæ* to be drank, as very profitable against all Defluxions.

Celius Aurelianus commends Cold bathing in all Fluxes of Blood in the *Asthma*, and acquaints us with *Asclepiades's* Opinion, that Water-drinking and the *Pseuchrolusia* were necessary for the preservation of our Health.

Thus far I thought necessary to transcribe from the Antient Writers, to shew their Opinion and use of Cold bathing; and from hence I suppose our *English* Physicians did formerly direct the use of the Cold Immersion in *England*. Such I must call the bathing in *St. Winifred*, *St. Mungus*, and *Buxton* Baths, by which many particular Diseases are cur'd, or the Health preserv'd: But the Niceness and Effeminacy of this Age, has much neglected their Use; and the reason of this may be the absurd Advice given to Patients, to frequent the Baths at *Bathe* for all Diseases; and the use of them will render all Persons more Effeminate: But I hope all prudent Men will

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will in time consider the disingenuity of that Advice, and endeavour by the use of the Cold Bath, to render their Bodies strong, and their Skins less subject to the changes of Weather. It is the Hot Countries which want Hot Baths, to evaporate the extreme Hot Particles of their Blood; but in our *Northern* Climes, we must close our Pores, preserve our native Heat, and, if we will live long, and healthful, we must render our Skins dense and close, by Cold Water, that the sudden and frequent Changes of the Air may not give us so many intermitting Fevers, and so many Defluxions of Humours, which render the *English* People unhealthy; nor upon all Occasions let the Air affect the Spirits of *Hysteric* and *Hypochondriacal* Persons.

Cold Baths in *England* may be distinguished into Two Degrees;

First, The extreme Cold, such as that at *St. Winifrid's-Well*, and the other at *St. Mungus-Well*, in *York-shire*, near *Knaresborough*. The Experience of our Countrymen has approv'd of these Baths,

as very useful in the Rickets, and many other Diseases, which depend on Transpiration in too great a measure; and the High Fermentation, the quick Circulation or Digestion of Humours, or the frequent Defluxions or Evacuations of them thro' the Glands.

The *Second* Degree of the Cold Baths is the Bath at *Buxton*, for that being one of a Milky Tepor at the first feeling, and by being long felt, renders the Body more cold and shivering; and by this chilling of the Body I may easily infer, that tho' it has an actual Heat, and boyls up with Bubbles, as the Baths do at *Bathe*, yet it has not a Heat equal to the Rarefaction and natural Warmth of our Humours; and for this reason I cannot but reckon it as one of the Cold Baths: And a most excellent Contrivance Providence has shewn in it, by giving it so much Heat as to hinder the sudden or violent Constriction of our Pores, so as to occasion Fevers or Defluxions, and to indue it with such Ingredients of Salt and Nitre, or Alum, as to cool, strengthen,

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strengthen, cleanse the solid Parts, and close up the natural Heat of our Humours, by constriction of the Pores.

The Effects of these two kinds of Cold Baths may very probably be guessed at, because these Baths have contrary Qualities and Effects to the Hot Baths, and therefore it is very just to assert, that where the Hot Baths disagree with our Patients, the Cold ones will be proper.

According to this Rule I will describe the Vertues both of the extreme Cold, and the Tepid Bath at *Buxton*; they all have the same Effects, but *Buxton* is more mild and safe, because of its actual Tepor.

Children, Women, and old Men faint in the Hot Baths; but the Cold ones agree with every Age and Time; but the Coldest Baths agree best with young Persons in perfect Health, whom they make more robust; but they must be brought to the use of them by degrees; and the best time to use them is in the Summer, not in the Winter.

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The use of the Bath at *Buxton* being very safe, it is fittest for all infirm Persons to use first, before they try the colder kinds; for by the use of this, they may be safely and by degrees used to Cold bathing. And this is proper for *Autumn-Bathing*, to close the Pores against *Winter*, and after the use of the Hot Baths.

The Constitutions or *Cacochymia's* in which the Cold Baths are most agreeable, are the *Cacochymia's* which are Hot, as the *Choleric*, which may be very much cooled, and altered by drinking of Cold Water, especially the Water of *St. Ann's Well* at *Buxton*, for that will cleanse away all the Choleric Sediments from the Stomach, Guts, Liver, and Blood; and by bathing long, check the Pulse and high digestion of the Blood; for that does not occasion any Sweat after bathing, but we stay in the Bath till we are very chill, and then go to a warm Bed, and lie there without sweating, till we become dry and warm again.

Hot

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Hot Baths make the Pulse vehement, great, quicker, and by this the Humours are more attenuated, the Aerial *Bullulae* in the Blood agitated, rarify'd, and by compression propell'd thro' the Glands of the Skin, because the Pressure of the external Air is much lessen'd by the Humidity and Heat of the Bath.

But in all the Cold Baths the contrary happens; the Pulse becomes slow, small, rare, languid; the *Bullulae* in the Blood are more compress'd, and the external solid Parts shrink, and are constring'd, and all Evacuations are stopp'd.

Because of these Effects I infer, that the use of *Buxton* Baths externally and internally, are proper for all the Hot *Intemperies* of the solid Parts, and all the Hot *Cacochymia's*, viz. the *Choleric*, the *Salt*, the *Viscid*, the *Muriatic* or *Corrosive*, the *Vitriolic* or *Melancholic* and *Putrid* State of Animal Humours.

But as the temperate hot Baths cool by opening the Pores, and evaporating the Hot rarify'd Humours, or Aerial

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Bullulae,

Bullula, so the Tepid Baths, or moderate Cool Baths, a little stop the Pores, and for some time after the use of Cold Baths of that temper, we observe Persons to be warmer sensibly to themselves, as I have heard them to complain, from their Observation of their own Temper.

But as the hotter Baths at *Bathe* do wonderfully inflame all Persons, and thicken their *Serum*; so on the contrary the coldest Baths produce a full Stoppage of the Pores, and occasion a Redness in the Skin; and after they are put to Bed, great Sweats, Fluxes of Urine, and Stools; so that the use of the coldest Baths put all Persons into an *Ephemera*, and that occasions the Defluxions by Stool, Urine, and Sweat observ'd after cold bathing.

We ought nicely to distinguish between the permanent Effects of the Hot and Cold Baths, upon the fluid Parts of Animals, *viz.* the Blood and Spirits, and the Alteration which the use of them gives, by a sudden Evacuation, or stoppage of Transpiration; for

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for the permanent Effects of the Hot Bath is the Volatilization of the Oily and Acid parts of the Blood, and the raising the Digestion of our Humours, as well as more invigorating the Pulse and Circulation, and rarefying the Aerial *Bullule* or Spirits in an Animal, tho' for the present they evacuate some hot Particles, and by accident cool us, as is evident by using Hot Baths in Feverish Dispositions, Defluxions of Humours; and we observe all Hot Constitutions to complain of their Heat; so that Cold Baths, they heat by Accident, by stopping the Hot Humours from transpiring; but cool and stop the Agitation of the Aerial Particles; and they agree with Fevers, Hecticks, and all Hot Constitutions depending on the over-digestion of Humours.

The Reason of the Heat following Cold Baths, may be given from the hot rarify'd Particles being straitned from evaporating, which act like a Ferment in the Blood; or else may be explained by the Changes in Water upon its freezing; for the *Vertuosi* inform us,

that by applying of Salt and Ice for freezing of it, it first subsides, and afterwards rises again in the Bottle in which it is froze; and this Effect probably depends on the Air included in the Water.

That Cold bathing cools the Humours appears by the following Instances, in which *Galen* experienc'd it.

In a very hot burning Fever *Galen* advises as soon as the Signs of Concoction appear, if the Strength be strong, and a young Person, boldly to give him cold Water to drink; and if he be corpulent, and the Season hot and dry, to put him into cold Water, which he says may be done without Injury; and thereby he will universally Sweat, and some Persons will have *bilious* Stools: But if the Fever be mild, and the Strength weak, and there appear signs of Concoction, he advises the temperate hot Baths, and Wine: And concludes that of Fevers, as Fevers, Cold Water is the Remedy, unless there be a *Putredo*, an Obstruction of the Pores, a Fulness or Debility of Strength,

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Strength, or Stomach, or some Tumour
in any Part.

He prescribes all bathing for Fevers
in the Declination, not in the Begin-
ning.

He gives the Cold Water to drink,
as much as the Patient pleases, in all
continent Fevers, by which all Sweat,
Vomiting, or Looseness was produ-
ced; and this was the general pra-
ctice in Continent Fevers, by bleeding,
drinking Water, and Cold bathing.
But in Lassitudes, heat upon Travels,
Pimples, and Transpiration stopt, ba-
thing in temperate warm Water was
us'd.

In *Hætics* Galen affirms that the tem-
perate Bath does no good, but the
Cold, to which the hot Water only
prepares them; and this he confident-
ly prescribes, if there be no putrid
Fever, or Inflammation of the Lungs;
but he condemns the drinking Cold
Water in Fevers, as injurious to
Hætics.

The manner of bathing *Hætics* was thus; Let him be carry'd in a Sheet by Four Men, and dipt twice or thrice in the hot Water, and after let him be dipt in the cold once; then put him into other Linen, and dry him, and remove him to Bed; let him stay but little in the cold Water, and be dipt but once, and anointed with Oil.

All the Ancient Writers commend bathing in Cold Water for the *Hydrophobia*; and hence comes our Custom of Dipping Persons bit by Mad-Dogs in the Sea-Water.

Not only the frequent throwing of Persons into the Water may cure the odd Fancy against Liquids, but the Coldness may prevent the Fever attending that Venom; and as Salt outwardly is used to the Bites, so that Water may check the putrefaction of our Humours by that Poyson. In this Disease the Water at *Buxton* may profitably be drank and bathed in for one Month's time, till the Change of the Moon is over; for this Water is salt
and

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and styptic; by both which Qualities it may be useful.

That the Water at *Buxton* is profitable for the Salt *Cacochymia*, is evident by the cure of the Itch; and *Wiseman* commends the swimming in Rivers for scabby Soldiers; the saltness cleanses the Skin from its putrid Ferment; and the stypticity heals its Ulcerations.

It is also observ'd, that the drinking of *St. Ann's* Water is useful for the Scurvy by its cleansing salt Quality; and it heals the putrid Gums.

These Salt-Waters at *Buxton* are useful in the Morpew, Scald-head, Tettors, and all other Diseases depending on external putrid Ferment; they may ease the Pains in the Venereal Diseases, for all hot Baths irritate them.

These *Buxton* Baths are useful also for the Leprosie, after general Evacuations.

The drinking the Water, because of its evident Saltness, is good against the Worms.

The experiencing this Bath, and the two colder at *St. Winifred*, and *St. Mun-*

gus, is not irrational; for the Cancerous Humour, whose Putrefaction they may probably more effectually check than any other Method yet known; for if these Cold Baths can check Putrefaction, they must be used as well as a cool Diet, against this State. In a Putrefaction the viscosity of the Blood is destroy'd, and the Consistence of the Blood is made fluid; because the natural viscosity of the Cake being dissolv'd, the Liquor thereof cannot be made into *Bullule*, to contain the Aerial Spirits, and that gives the great languor in all putrid states of Blood, as the Scurvy and Malignant Fever; we commonly observe, that a viscid Liquor, such as Soap and Water, or new Beer, may be easily raised into Bladders or Bubbles, by mixing Air in it; but in stale Liquors the Consistence wants a Viscidity to retain the Air in Bubbles: And all Gangrenes, Cancers, and very putrid Ulcers, have a thin *Sanies*; we observe a Rheumatism Blood in the Cancerous; but that is only the Chyle coagulated by the Vitriolic Blood; notwithstanding

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ing that the Cake of the Blood often appears then putrid. And since the Hot Baths increase all Putrefactions, the Cold ones may probably do the contrary.

Plato was cur'd of a Fever by an *Ægyptian* Priest, who order'd him a Bath of Sea-Water, as *Diogenes Laertius* affirms.

Cold Water is us'd in *Kent* for the cure of the Quartane, as some of that Country have informed me, standing in it before the Fit.

A Bath of Tepid Water is useful for the cure of *Ephemeræ's*; and the Bath at *Buxton* is used by them that frequent it, the same Night they come thither, to cure their lassitude, heat, and thirst: I may therefore commend this Water in *Ephemeræ's*, to cool in their Declination, and to be drank in the beginning.

This Water at *Buxton* is useful in too great an *Obesity*, or Tumour of the *Viscera*; by its saltness it cleanses by Urine; and its stypticity externally shrinks the Flesh.

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The drinking those *Buxton* Waters may be useful in many Obstructions of the *Viscera*, as Jaundice, Obstructions of the *Mesentery*, *Spleen*, *Kidneys*, by reason of their Saltness; but their Stypticity makes them fitter for all Fluxes of Humours, in which old Authors most commend them: And since the Hot Baths do that Effect of Deobstruction sufficiently, we may leave Obstructions to their cure.

Ætius de seminis profluvio recommends bathing or swimming for that Infirmary, and affirms that the Cold Water cures all Diseases depending on Defluxion of Humours, especially if they have any Physical Quality, as the *Albulæ* in *Italy*, which being drank, are profitable to all Defluxions; and those he describes as *Sapore subsalsæ, & tactu lactei teporis*; and there was a Mixture of *Allum* in them, as the old Writers guessed, by their stypticity, by which they astringe all the solid Parts both outwardly and inwardly; and that renders them less subject to Defluxions.

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The Effects, Heat, and Taste of the Waters at *Buxton* being so like the *Albulæ*, I cannot but compare them with one another; and by Analogy to them, explain the Virtues of *Buxton* Waters.

When they are drank, they must by their Humidity dilute the viscid Humours, by their saltness they cleanse away the precipitated Salts, or Sediment of our Blood, by Urine; and by their stypticity they stop the rarefaction of the *Bullulæ* in the Blood, and the violent agitation of the Aerial Spirits inclosed in them. I compare Blood to other fermenting Liquors, which have large Aerial *Bullulæ* contain'd in them after a demi-fermentation, which gives the briskness and pungency to such Liquors.

By the Taste we observe these Effects of the *Buxton* Waters on both the fluid Parts, *viz.* the Blood and Spirits; and the solid Parts, or hollow Pipes, which contain the other; and we do from thence rationally infer, that they are useful in the following Defluxions;
and

and Experience has confirmed the same, in these following Species of De-fluxions.

1. The Flux of Blood by the Nose, Anus, Uterus, Vomiting, Spitting, Urine, and in the *Hepatic Fluxes* and *Dysentery*, and all *Hæmorrhages*.

2. In the preternatural Evacuations of the Nutritious Humours by Vomiting, Loosness, Diabetes, *Ptyalismus*, *Gonorrhæa*, *Fluor albus*, Abortion, weeping of the Eyes; in all these *Buxton Waters* are convenient; and in all incontinence of Urine, and in all *Catarrhs* and *Asthma's*, these Bath-Waters of *Buxton* may safely be drank and bathed in; and they most particularly stop too much Sweating by their stypticity and coolness: They both thicken the Humours in the Glands, and constringe the Excretory Vessels in the Skin; and inwardly they, like other cool Diet, thicken or check the rarefy'd Humours and Air; for if Fluids be a Congeries of Bubbles, with Air included, the Matter we expire and transpire, (which the old Authors call another

other sort of Respiration) is some of those *Globuli* or *Bullule*, which are the Integrant Parts of Fluids; and the Air being rarefy'd by Motion and Heat, make the *Bullule* too light for the gravitation of the other Parts, and more fit to be forc'd out of the Animal Liquor, both by the Pulse, and Gravitation of the other *Globuli*, to which the Rarefaction of the external Warmth contributes, by weakening the Pressure on the Fluids in Animals.

That Aluminous Baths condense the Skin, is evident by the tanning of Leather; the Skin is frequently condens'd by the Blast of cooler Air, which occasions its Constriction by a sort of a Convulsion we call a *Horror*; by both these ways externally we may condense the Skin, and constrict the Pores by bathing in *Buxton Waters*.

The density of Skin is known by its pale Colour, hardness, and its Pores appearing as the Skin does in Winter, like a Goose-Skin: They are difficultly heated by Exercise, and sweat little, and have no great Colour after it in
the

the Skin. If this Constriction be too much, we must cure it by Hot Baths, anointing with Dill-Oil, or that with Horse-Radish, with a soft Friction.

In Dropsies the use of Salt Water outwardly, and inwardly, such as that at *Buxton*, may do very well; and by the Saltness, to cleanse by Urine; and by the stypticity to strengthen, or heal the Lymphaticks, in the *Ascites* and *Anasarca*.

In the cure of the Motion of the Animal Spirits, the Cold Baths have these Advantages.

I. In Palsies they stop the Pores, and accidentally occasion an Ebullition in the Humours; that is, first by a subsidence of the Aerial *Bullulæ*, and after that by a kind of Spring natural to the Air, a Restitution or Expansion again to their Natural Vigour, Motion, and Extension, by which a Distension is made in the Nerves, and an *Ephemera* in the Blood; and by these means a De-obstruction is made in the Nerves in Paralytic Persons; and this has been sufficiently experienc'd in the Palsie and Rickets. As

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As to the Palsie, I heard a Relation ^{br.}
of a Cure done by my Ingenious Friend
Dr. Baynard, upon Dr. Gold's Son-in-^{Bayn.}
Law, who told me a Story, the Parti-^{cular}
culars of which I cannot well recol-^{Dr. Gold.}
lect, more than that a young Boy be-^{Son.}
ing Paralytic, with the loss of Speech,
by a few times being put to the Cold
Bath, recover'd his Motion and Speech,
when he had try'd all other Hot Me-
thods, and the Hot Baths, without any
Success. This was related to me by
Dr. Gold himself at Bath.

As to the Rickets, I have annexed
the Letter of Dr. Clayton, concerning
the Virtues of St. Mungus-Well, near
Knaresborough in York-shire; and it
seems to me that an *Ephemera* occasion'd
by Hot bathing, does the same thing
as a preter-natural Heat, or an *Ephe-*
mera from an Annual or long use of
Hot Medicines, which are Nervine.
The cure of the Rickets and Palsie both
by cold bathing, shews the Rickets to
be a Species of the Palsie in Children,
whilst they are increasing, which makes
the Bodies unequally nourish'd, the
Pulse

Pulse of the Arteries being very deficient in the Paralytic Parts, and the Humours unequally circulated, the Head is too big for the Proportion in *Embryo's*, because the Bones are made before the Muscles; and the Muscular Flesh does not so well increase in any Bodies, as in those that have due Spirits, to give a Stop to the Circulation of the Blood in the Muscles, which probably is the Cause of their Motion; and the Muscular Parts by Motion, Friction, Cold bathing, grow robust, plump, and of a due proportion to the rest of the Body; and for the increase of the Muscular Flesh and Strength, Cold Bathing is used at St. *Mungus*-Well.

In the want of Appetite, the drinking St. *Ann's* Well at *Buxton* may be useful both by the Saltiness to stimulate and cleanse, and the stypticity to strengthen the Stomach.

The effect of the coldest Baths may be try'd in the *Gutta Serena*, *Syncope's*, Deafness, in the loss of Smell and Taste, in Weakness of Erection, or *Tenere languidâ*, in the Weakness of Swallowing;

lowing ; for if the Cold Baths can cure an universal Palsie, why may they not cure the Palsies of particular Parts, which I have mention'd ?

In the want of Sleep, the *Bullulae* of the Serous Humours which fill the Nerves, are too much expanded, and this causes the *Vigiliae* : This elasticity of Spirits is abated by the humidity, coolness, and stypticity of *Buxton-Waters*, both drank, and us'd for Baths ; and for this reason we bathe in them going to Bed.

2. Pains depending on Inflammations, and Viscidity of Humours may be corrected or prevented by these Baths, as hot Head-Aches, Gouts, Scorbutic Rheumatisms, Pain at the Stomach, Cholic, Tooth-Ach, Strangury, Stone, Quinsie, Inflammations of the Mouth, *Uvula*, Tonsils, Gums, Glands about the Ears, Stomach, Intestines, *Anus*, and *Hæmorrhoids*, Liver, Spleen, Kidneys, *Phrenitis*, or the Inflammations of the Spirits ; Inflammations of the Eyes, Lungs, *Pleura*, Breast, Stones, Muscles, of which all the for-

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mer Inflammations are only Species's, which are distinguish'd by the Effects the Inflammation causes in each Part, the drinking and bathing in these Water, at *Buxton*, being the chief Remedy to prevent them, but not to cure them, unless in particular Circumstances.

As to the Ulcers inwardly and outwardly, the Bath at *Buxton* being drank cleanses and heals, a *Vomica*, *Phthisis*, *Empyema*, *Dysentery*, *Tenesmus*, Ulcers of the Eyes, Kidneys, Bladder, *Anus*, *Viscera*, Spleen, Liver, Glands, in the King's-Evil, the Ulcers of the Mouth, Throat, Nose, Ears, Gums, Stomach, *prostate* in a *Gonorrhœa*.

3. The Third Species of Fluxes is that through the Nerves, and the Glands they arise from, as the *Epilepsie*, *Hysteric Passion*, *Chorea St. Viti*, Convulsion of Children, Palpitation of the Heart, *Singultus*, Coughing, Sneezing, *Priapismus*; in all these Cases the Coldness and Stypticity of the Water both drank and bathed in, as that at *Buxton*, may do good by cooling the Humours, and strengthening the Glands; and

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and in these Cases the Hot Baths do Injury, and for that reason the Cold Baths must be most agreeable.

4. The Motion of the Animal Spirits in the Brain, is best reliev'd by the coldest Baths, which considerably overcome the Animal Spirits, when too much rarify'd, by thinking, or Passion, or Fevers in the *Maniac* or *Phrenetic* Persons.

In Melancholicks the Vitriolick Water near *Buxton* may be most agreeable to drink, and the Bath to use outwardly for cooling the Humours, and strengthening the Spirits, by constringing the Pores.

In this Bath we ought to bath for the *Furor uterinus*, and all kinds of *Deliriums*, to abate the exceeding Rarefaction and Motion of the Aerial Spirits included in the *Bullula*, in the Nerves, and Blood.

5. The Animal Spirits produce the Flatuosity in the Nerves, when too much rarefy'd; and this Rarefaction is check'd, by drinking and bathing at *Buxton*, in the *Vertigo*, *Tympanites*, for

which we ought to bathe in Sea-Water, as the Ancients prescribe.

6. This Cold bathing is much commended in the *Asthma*; and in that Disease I and divers others have observed it useful. And I met with a Lady at *Buxton*, who had used that Bath for some Years, for an *Asthma*, and found benefit by it; and I find *Celius Aurelianus* has much commended the *Pseucrolusia* for the *Asthma*. And this is agreeable to my Notion, that it depends on an *Ephemera*, as a Symptom in the Nerves. But I cannot commend this Bath in cold Flatulencies, as that of the *Uterus*, and particular Parts: But for all Flatulencies depending on the Hot *Cacochymia's*, as the Choleric, Salt, Vitriolic, putrid, it seems very profitable, by cooling the Rarefaction of the Aerial *Bullulae*, both outwardly and inwardly used. Those that be of a hot, bilious, and dry Constitution, have their *Halitus*, which pass by Transpiration less humid, but more acrid, and fumose, as *Orabasius* calls them, and that renders

ders them more subject to *Ephemeræ's* and Defluxions; and for those Hot and Dry Constitutions Water-drinking is absolutely necessary; for all fermented Liquors agitate and rarefie the *Bullule* in the Humour, and cause Defluxions thro' the Glands.

7. Drinking Water in the Morning cools the Blood, prevents Defluxions, and washes off the bilious and salt Re-crements by Urine.

Drinking Water after Dinner cools the Digestion, and stops the high Fermentation and Windiness in the Stomach.

Drinking it at Night stops the Fever produced by the mixture of the Chyle and Blood, as it happens in Hectical People.

The Waters at St. *Winifred's-Well*, and St. *Mungus*, I never heard were proper to be drank, because of their excessive Coldness: But the Bath-Water at *Buxton* may be drank to two, three, or four Pints, without occasioning any Vomiting; but it will cause vomiting if it be drank ha-

stily, because of its Warmth and Salt-ness.

The Injuries by cold Baths are the following; but I must except the Bath-Water at *Buxton*, because of its natural Tepor, from them.

Very Cold Water may do as much Injury as Hot Baths, tho' it strengthens and collects the natural Heat in strong healthful Bodies. It may extinguish the innate Heat, (that is, the natural Tepor arising from the Motion, and Mixture of our Humours) in Persons that are weak, infirm, or very old.

Cold bathing is injurious to Infants and Boys; for *Galen* observes, that it hinders their increase, and is not allow'd by him till 25 Years of Age; or the middle of the fourth seven Years. From this Observation I believe our *English* Physicians learnt the advantage of Cold bathing the Rickety Children, to hinder the growth of the distorted Part, and strengthen the Muscles.

It agrees not with thin, lean, tender Persons; and those of a Cold Consti-

stitution, or that have some of the Cold *Cacochymia's*, as the Pituitous, the Serous, Cold, Windy, or Acerb Humours; and those who have not used it, must be brought to it by degrees, and not in the Winter-time.

Since Cold Baths astringe and stop Fluxes, as Cold Diet, Cold Air, and cool Liquors do, they cannot be convenient in any Obstructions of the Secretion of the Animal Humours, and therefore improper for all Tumours of the *Viscera*, as Jaundice, Tumour of the Spleen, Kernels, and inward Inflammations: And *Cælius Aurelianus* dislikes it in Lethargies, because it stops the Passages. And he also condemns it in a *Pthysis*; and by Analogy it is easie to guess that Cold-Water-Baths stop more the suppression of Water, but may occasion at first a great Flux, by stopping Transpiration, and exerting an Ebullition in the Blood.

It may help in the binding of the Body by the same Accident, turning the Circulation inwardly; for as Hot Baths are used for Revulsion, as turn-

ing the Circulation more into the Habit of the Body; so the Cold act contrarily to them; in other Evacuations suppressed, as the *Menses*, *Hemorrhoids*, *Mola*, *Lothing*, they are injurious; and in an *Ascites* they seem injurious, except the Water be salt.

In the beginning of Fevers, or De-fluxions of Humours, or violent Pains, they are dangerous; but in the Declination, or to prevent them, very useful; as in Pains of the Head, and a *Phrenitis*, *Stone*, *Strangury*, *Gout*, *Rheumatism*.

In a *Tertian* Cold Water is esteem'd dangerous; and it's known to be very offensive in all Ulcers.

It may produce cold Pains; but cures the hot ones, or those depending on the hot *Cacochymia's*, after due evacuation; but it seems improper in the Cholic-Pains, and in all inward Ulcers, cold bathing is improper, tho' the drinking the Water is useful.

Cold bathing is much condemn'd in the *Epilepsie*, or *Convulsions*, by occasioning a Flux of the *Serum* into the Nerves;

Nerves; but in many hot Inflations, it is evidently useful, tho' they be Nervous Effects, as in a *Priapism*, *Asthma*, *Tympany*, *Mania*, *Melancholy*, *Vertigo*, *Incubus*, and *Hysterical Fits*.

The Preparation for the Bath is to be by due evacuation of the Humours abounding in quantity, or purging, or altering their ill quality, to avoid the great Ebullition or Heat occasion'd by Cold Baths at first.

We may vomit with *St. Ann's-Well* at *Buxton*, by drinking the Water hastily, to two or three Quarts; and this is useful in the *Gout*, *Sciatica*, *Obstructions of the Mesentery*, *Spleen*, *Liver*, *Dropsie*, *Inflations*, *Asthma*, *Melancholy*, *Epilepsie*, *Hydrophobia*; in all these Cases Vomiting is by experience found profitable; and this may safely be done by that Water at *Buxton*.

Purging may be recommended in other full Bodies, by dissolving $\frac{3}{4}$ β or $\frac{3}{4}$ j . of the *Epsom Salt*, or *Sal Mirabilis*, in the Water of *St. Ann's-Well*, which is of it self a little laxative.

Ætius

Ætius orders that we should observe an exact Diet in cold bathing; and it is safest when empty, for then it cannot occasion so great a Flux upon any infirm Part. He advises it not to be used after Venery, great Lassitude, nor on a full Stomach; not after Vomiting, Purging, or any Weakness of Spirit, or natural Heat; and that the Person be twenty five Years old, and be used to it by degrees; and at first not to absolutely Cold Water, but that which is Tepid: And by parity of Reason I may recommend *Buxton* Bath as the best Preparative to Cold bathing.

He advises the Friction with Linnen, the Rubbing with Oil, and after that Exercise: Then to leap into the Cold Bath; and when he came forth, they rubbed the Body again with Oil, till the Skin was warm, and then gave them Meat.

The Ancients anointed with Oil after Rubbing, to mollifie the Skin, and take away its Tension and Dryness, they stopt Sweats by it; and for that end used Styptic Oils, as *Oleum Omphaceum*.

By

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By Oils they defended the Skin from the Injury of the ambient Air; and for the same end it is probable the *Indians* paint the Skin.

I believe some Practice of this kind may be useful in dry and tender Bodies.

Those who are extenuated by a long Disease, were only wash'd in the hot Bath, and went immediately into the Cold Water, and after were anointed; and those that were tired with a Journey, they anointed before and after bathing.

If Sweating be design'd, no Oil was used either before or after bathing.

We may imitate the Ancient bathing by putting our Patients first into a warm Bath, in a Tub of hot Water, in a warm Chamber, thence into a hot Bed, to Sweat and Sleep; and when he has returned to his natural Temper, we may put them into a Cold Bath, or a Tepid one; and after rubbing him with Oil or Butter, or use him to swimming in cold Water, or at the going out of the hot Bath, Persons

sons are to be sprinkled with Tepid Water, if the Cold be offensive.

My Ingenious Friend Dr. Baynard will in some time give us his Experience about Cold bathing, and how he prepares his Cold Baths artificially from Pump-Water, Nitre, or Pond-Water, with *Sal Armoniack*, and *Nitre*.

He uses this Cold bathing to cure *Hætick Fevers*, *Itch*, *Convulsions*, *Weakness* or *Tremor of the Limbs*, *Rickets*, *Palsies*, *Rheumatisms*; but dissuades this Cold bathing in *Epilepsies* and *Hemiplegia's*.

The particular use of this bathing he gave me in Writing three Years since, which occasion'd my Curiosity of reading *Galen*, and the old Writers on that Subject; and I cannot but believe that we had the practice of Cold bathing from the *Romans*, when they govern'd here, as well as the method of using the Hot Baths.

All that has been writ on that Subject is by the *Greeks*, and *Romans* long since; only the Religious Men in our Kingdom have preserv'd the Practice
of

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of bathing at *Holywell*, and *St. Mungus*, and gave the credit of curing to the Saint's Merits, which may probably be accounted for by the natural Effects of Cold-Water.

I was once inform'd of an old Catholick, who staying too long in *St. Winifred's* Water, died there, the extremity of the Cold extinguishing the natural Heat: Therefore these Cold Baths are only fit for Summer, and young Persons.

The old Writers believ'd that Cold Water gave Fœcundity to Women; and this is much ascrib'd to *Holywell*, and for that cause may be frequented in hot Constitutions, and Hysterical Women; and it will stop all Evacuations that are injurious to the Womb.

This Water I have no particular knowledge of as yet, for its Cures, but I find it most used for Devotion, and Pleasure, by young Persons, who have told me, that it had no effect on them, more than to make them very light-some, and that they never sweat after it, nor caught cold.

The

The time of staying in these, is according to our easie bearing the coldness of the Water; and it is very proper to dip over Head divers times, in the use of these Baths.

We have yet a greater Prejudice to Cold Baths than to the Hot, because they occasion Cramps, Febrile Rigors.

Cold is found to be an Enemy to the Teeth, Nerves, Spinal Marrow, and Brain; and the old Aphorism runs thus, *Nix & glacies pectori inimica, tusses movet, & sanguinem, & distillationes*; We commonly are sensible of the Injuries of Cold Air, when we are hot; and the sudden change of the Air affects us with Distillation; the same we fear from Cold Water, and therefore we believe it dangerous, and not so safe as the Hot Baths. But to this I may answer, that we use the Cold Baths only in Summer; that for preservation of Health the robust Persons only use them: And the Servants near *Holwell* and *Buxton*, make it a part of their Agreement with their Masters, that they may have leave to go to those
Wa-

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Waters every Year for their Health. But in the hotter Constitutions which occasion Diseases, as the *Choleric*, *Scorbutic*, *Vitriolic*, *Salt*, and *Putrid*; these want the extream Coldness, to reduce the excess of Heat, Fermentation, Digestion, or Motion of the *Globuli*, call it as you please, to their natural Temper; and Experience has sufficiently satisfy'd us, that *Holywell*, *St. Mungus*, and *Buxton-Waters*, are not only innocent, but also very useful, for the Cure of many Diseases.

Aetius commends the swimming in Sea-Water Cold twice before, Dinner and Supper, for the Itch and Leprosie.

We may make our selves artificial Cold Baths of Pump-Water in the Summer; and the Person that uses them must be prepared by bleeding and purging, as the Disease and Constitution requires. In the Morning it must be used, being empty, and dip over Head in the Water, in which he must continue up to the Neck, from two or three Minutes to half an Hour, as the Patient can bear it; and then

then be dryed, and put to a warm Bed, with a Flannel Shirt on, and there sleep. This Immersion may be repeated thrice or oftener; and the first time sit in the Tub but two or three Minutes, and longer afterwards; and convenient Medicines may be given, as well as a suitable Diet to the Disease; that is, the coolest Diet is most agreeable to Cold bathing, which is used for the Hot Diseases, as *Hætick Fevers* with *Phrenitis*, and all *Rheumatic Bloods*. And for more particular Directions, it is necessary to consult a Physician, who has found out by Experience the best Method of Cold bathing. I never yet heard of any who has made any successful Tryals of it, but Dr. *Baynard* in *Surrey-Street* in the *Strand*; to whose Management I would recommend those who want the benefit of a Cold Bath.

A Letter from Dr. Clayton, concerning the Virtues of St. Mungus-Well, near Knaresborough in Yorkshire.

S I R,

ST. Mungus Well abounds with very little of a Mineral, unless it be something of a Nitrous Salt, and a little Vitriol, which render it particularly Cold, wherein chiefly consists its Virtue.

Therefore the Operations that it has on the Body, is to make the Pores of the Body contract and close, so as to keep in that natural Heat which should strengthen and invigorate the Body, and so particularly strengthens the Nerves: For you must know, as there are many Thousand Pores we constantly transpire thereat, so that they are as so many Chimneys to the
I Body,

Body, thro' which the Heat of the Body constantly passes, and which is called, (because these Fumes that so pass are insensible,) Insensible Transpiration. And tho' this Transpiration be insensible, yet in a Day's time it is so considerable, that at all the Pores of the Body we transpire very nigh twice as much as we void either by Stool or Urine, or even both; for a Man that eats and drinks in twenty four Hours forty Ounces of Meat and Drink, voids not by Stool and Urine past fifteen Ounces; the other twenty five Ounces pass by this insensible Transpiration. Therefore this being so considerable, when these are too open, it must needs enfeeble and waste the Body as well as a constant purging, and a too great evacuation any other way. Therefore the bathing in these Cold Waters makes the Pores contract themselves; particularly it also cleanses them of that foul Sweat that clogs them, and renders them unapt for the Performance of the Duty they are design'd for, which is to contract or dilate themselves proportionably to the external Heat,

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Heat or Cold; and if they be defective either way, too remiss, or too rigid, proportionably various Distempers happen: As when too remiss in Children, the Rickets, generally in the Extremities a Wasting; so their Legs and Arms grow lean and emaciate; but that part of the Body that is next the Heart, which is the Fountain of Heat, is supply'd with Heat sufficient, and therefore that part of the Body continues pretty plump; but generally the Head, that is fortify'd with a Scull, and not liable to this preternatural Transpiration, grows extraordinary big in such Children.

Fools and heavy-spirited People are little liable to this Distemper; but the witty Children, whose Spirits are the most refin'd and subtle, are the aptest thus to a preternatural Transpiration.

This bathing likewise upon the same account is good for some Hectical thin People, whose Distemper is owing to the same Cause.

But there is a Hectical Distemper that is owing to the contrary Cause, the too rigidness of the Nerves, that keeps in the Heat too much. And this is the Cause of many Fevers; and therefore as bathing in these Cold Waters is good for the Rickets, so is Sweating extraordinary good in such Fevers; for as the one contracts the Pores, the other dilates them.

Rickets Therefore the Distempers it is good for is particularly the Rickets above all others; as likewise Hectical Persons, of a flaccid soft Flesh; and for some windy Pains in Persons likewise of a flaccid Flesh, and the like.

The manner of bathing is only as we do commonly in a River. Children they swill and dip them, and so frighten and stir up the Spirits, by a particular Agony the more. Often pop them over the Head, and carry them to a Bed, or the like, to sweat gently after it, that so the Pores may be brought to the due Tone of opening

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opening and contracting, as they ought to
do; and therefore they do the same three
or four Days, that the Dilation and
Contraction may be the more perfect. ^{3 or 4} ^{days}

I am

Your most assured Friend,

and humble Servant,

Clayton.

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*An Extract of what is useful from
Dr. Jones's Treatise of Buxton-
Bath; writ 1572; with some Ad-
ditions and Remarks upon it.*

T*His Bath is in the high Peake in
Derby-shire, 10 Miles from Chaut-
worth, 16 Miles from Manchester, 16
from Chesterfield, 20 from Derby, 30
from Westchester, 30 from Lichfield,
and 20 from Stafford.*

It is observed that no Baths have a healthful Air about them, because these Baths, viz. *Buxton* and *Bathe*, are situated very low, in a Valley, betwixt two Hills; and the Country near *Buxton* standing so very high, frequent Rains are observed to fall there: But in the Summer it is frequented by many Persons of Quality, for Hawking; the Moors thereabouts being very large like a WilderNESS; the Poots are so
pleñ-

• the *BATHS* in England. 119

plentiful there in their Seasons, that a Person of Quality killed twelve Brace in a Day for one Week he staid there last Summer.

This Country being in the Winter unpassable, because of its Snow, is frequented only for the Bath's sake in the Summer time, and out of Curiosity by others, to admire the Wonders of that Place; amongst which that Bath is much esteem'd as one, by all its Northern Neighbours, who visit it once in a Year.

The Wells have the Name of the Town, and that of some Saxon or Dane. It hath for many Years past been frequented for the Health of Thousands, for bathing, as well as it is now in these our Days: For between Burgh and it, there is a High-way forced over the Moors, all paved, of such Antiquity as none can express, called Bath-gate.

More came out of a Superstition they had in the Well, than for any assurance they had in the Property, Quality, or Temperature of the Bath; for of it, and the use thereof, they were ignorant.

And to this Day the Common People frequent it for Pleasure, now they have disused any Devotion to *St. Ann*, by whose Name one of the Wells is called.

Cambden observes, that at the Rise of the River *Wye*, there were Nine Springs of Hot Water, called at present *Buxton-Well*, which he says were found by Experience good for the Stomach, the Nerves, and the whole Body; and the most Honourable *George Earl of Shrewsbury* had lately adorn'd them with Buildings; and they began to be frequented by great Numbers of the Nobility and Gentry: About which time the Heroic and Unfortunate Princess, *Mary Queen of Scots*, took her farewell of *Buxton*, in these Verses,

*Buxtona quæ calidæ celebrabere nomine
lymphæ,*

Forte mihi posthac non adeunda, vale.

And from this Queen, the Pillar in *Pool's-Hole*, which is near *Buxton*, may have its Name.

That

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That these *Baths* were anciently known to the *Romans*, the *Roman* Causey, call'd *Bath-gate*, which continues Seven Miles to the Village *Burgh*, evidently shews; and from them we learned the use of bathing.

But the Priests of the following Age did not understand how the great Effects of that *Bath* could be produced by so Tepid a Water; that according to the Humour of the Age, it was attributed to the Merit of *St. Ann*, to whom the Sick made a religious Visit.

The Bath at *Buxton* has a fiery Heat evident to the Sense; but it is in a moderate Degree, or Tepor rather than Heat.

It contains no sign of Brimstone; but it boils up with Bubbles, as at *Bathe*; so that its Heat comes from some actual Fire: There is the same depression of the Earth into a deep Valley at *Buxton*, which appears at *Bathe*; and that Contrivance was probably necessary, to come nearer to the Central Fire, for the boiling of the Water.

Buxton-

Buxton-Bath bath not the Fourth part of the Heat as the Baths at Bathe, nor the Minerals that be there, viz. the Sulphur.

Buxton-Water is much like as if a Quart of boiling Water were mixed with a Gallon of cold Water: But Bath-Water is as if to a Gallon of seething Water a Quart of cold Water were put; by reason whereof it attracteth and dissolveth more speedily, but Buxton more sweetly, and more temperately, not bringing so many grievous Accidents as Bath does. This operates effectually, tho' not so speedily as Bath Waters do; but for many Infirmities more commodiously, by restraining all unnatural Evacuations, and strengthening the feeble Members, assisting the Animal, Vital, and Natural Faculties, dispersing Opilations, and qualifying Grievs.

There was no necessity of Sulphur in Buxton-Water, nor no great Heat, because Buxton-Waters were design'd by Nature for a Cold Bath, and that the most moderate and safe; for which End it was prepared with a lacteal Te-
por,

por, to prevent any fear of a sudden stoppage of Pores, and to be less offensive to the nicest Constitutions.

The Well-Springs are situate in a Valley hard by a running Brook, and run into it, where you may perceive the Hot Water on the one side of the River, and the Cold on the other, which hinders the River of freezing in coldest Weather, for a quarter of a Mile; which is an Argument of the Power of the Heat of those Springs, or else of the Saltness of them.

There be five or 6 other Springs not so good as that first mention'd. If the Mineral Men bored to find the Cold Springs, and turn them away, the Springs would be more excellent.

This depends on the common Vulgar Error, that these Baths were design'd for Hot Baths; and that there can be no good Effects from cold Temperate Baths; and upon this Prejudice there have been divers Enquiries made, to find out the cold Springs, and divert them from the hotter; but we may thank God, who has not permitted

mitted the Mistakes of Men to injure his Blessings.

I designedly enquired of all the old People I could meet with in *Buxton*, about the Heat of the Bath-Water, who assured me, that it has been the same many Years past; which I may confirm by the Writing of Dr. *Jones*, who led the People into this Mistake, who would have it made more hot, that more cold Infirmities might be cured by it; but this is unreasonable that Cold Baths should be made fit for Cold Diseases, nor the Hot Baths for the Hot. Let proper Baths rather be chosen for every particular Disease; Cold for the Hot, as those at *Buxton*; and the Hot for the Cold, as those at *Bathe*.

Seeing God hath bestowed on us these Baths for our great Benefit, if so be there be nothing that can more readily take away Distempers, (as Galen saith, de usu partium) of Heat and Cold, or evacuateth by the Pores the superfluous Humours, than a Dulce or pleasant Bath of warm Water, or that maintaineth Health more;
for

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for whereas it is by Nature moist, and moderately Hot; by its humidity it humecteth, it dryeth, heateth, all cooled or congealed Humours; it strengtheneth the loosed by insensible Transpiration; it discusses and mundifies the Skin; all which is proved by daily Experience.

I find the Taste of St. Ann's Well-Water and Buxton-Bath to be the same as to Heat and Minerals. It is evidently of a Milky Tepor, very Salt and Rank, which the Ancients called *Aluminous*; but I will translate Dr. Lister concerning them, who gives the Ingredients of these Waters, and says out of 32 lb. of both Fountains boyld to dryness, he had scarce two 3 of Salt, without any Flakes of Stone, tho' he observ'd in the boyling the Brass Vessel to be infected with the Powder of an Ash-colour'd Stone. The Salt coagulated into Chrystal of Common Salt; amongst which were some Crystal of a *Lapis Calcarinus*.

This Spring at Buxton runs plentifully; and the Bath may be empty'd in a Quarter of an Hour, and is im-
medi-

mediately fill'd again in the space of an Hour, or less.

This Bath is contain'd in a Room built over it, the Air of which is very warm; and a Fume rises from it like boyling Water.

The Water does not feel very Tepid upon our first Immersion into it; but after some time, you may find it warmer; and in some particular parts of the Bath more warm to your Feet; and it fumes most in the Winter.

Their stay in this Bath is an Hour or more, till every one feels themselves very cool; and then they are wiped, and put to a warm Bed, to lie half an Hour, and sleep; but no Body sweats with it, nor catches cold, tho' they go in naked: But I think the Men ought to use Drawers, and the Women Shifts of Linnen or Flannel. But Custom hath taught the Sexes to have separate times of bathing.

The Bath-Water is so clear, that we may see to the Bottom, tho' the Water be usually up to the Neck.

It

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It is convenient to dip the Head all over in these Tepid Baths, or lay a wet Cloth on it; for it cools the Head much, and checks the arising of Fumes.

The Times of bathing are Morning and Night; fasting in the Morning, and after Supper.

They usually swim and walk about in the Bath; for it is impossible to stand still without chilling too much.

The Well of which we drink is *St. Ann's Well*; and of that some drink two, three, or four Pints, which may cause Vomiting if drank hastily; but I and some others drank it without any great offence, except its styplicity and saltness, or Tepor, make it nauseous to some.

I could not find any Vitriolic Taste in the Waters, but can fairly give an Account of their Virtues from their cooling effects on our Bodies; for they are made cooler by the use of it; and the actual Heat has not any considerable Effect on us; for by that we are
neither

neither heated, nor sweat; therefore no more Heat was necessary, but to prevent the inconveniences of too sudden a coldness by the Water.

The Saltness of the Water cleanses, and has an effect as well as all Salt Baths have, as a *Diuretic*, &c. *Vide* the account of *Salt-Baths*.

The stypticity of the Water helps the Coldness to stop the Pores, to strengthen the solid Parts, and stop Fluxes; so that from the moderate coolness, the saltness, and stypticity, I may give a fair account of the Virtues of this Water.

Buxton Water, by reason that it varies the Parts, it provokes Transpiration, and wipeth away the Filth of the Skin; and it also confirmeth, joyneth, consolidateth the loosened, severed, and weakened Parts, qualifying the Over-Heated Members, drying such as be over-moist; therefore good for all Diseases as come of over-much contrary heat, and for such as come of overmuch Moisture; for all Cholerick and Salt Humours.

These

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If these be the Effects of *Buxton-Baths*, they are the same as in all Cold bathing at *St. Winifred's*, and *St. Mungus's*; for they strengthen, and cool, and constringe the solid Parts, and cure the hot *Cacoehymia's* of our Blood; for which reason I may esteem *Buxton* one of the most temperate and safe Cool Baths in Europe, as Experience has confirm'd it.

The Diseases it cures are Rickets, Inflammations, Fevers, and Rheums; Head-aches, weak Sinews, old Scabs, Ulcers, Cramps, Numness, Itchings, Ring-Worms, Impostumes.

These Wells help Women, who by reason of over-moisture be unapt to Conceive. Also all such as have their Whites too abundant: Also weak Men that be unfruitful: Likewise for all that have a Priapismus, and that be parboyl'd in Venus's Gulph; all these it cools, cleanses, and strengthens by its coldness and stypticity.

It beautifies the Skin, and cleanses it.

It is profitable for those that have the Consumption of the Lungs. It cools them,

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and

and stirs all Evacuations, or Looseness, Hemorrhages.

It cureth Apoplexies, Palsies, Tremblings, Vertigo, King's-Evil, Redness of the Face, St. Anthony's-Fire, Melancholy, Hypochondriack Winds, Jaundice, Dropsie, Pains in the Breast and Stomach, the Scurvy and Night Pains, Rheumatism, Sciatica, Gout, Stone, Ulcers, Cancers, Schirrhus, Cholic, Hysteric Passions, Catarrhs, Asthma's, Leprosie, Dysentery.

It is beneficial to all such as vomit Blood, as hath been well proved.

It is very good for the Inflammation of the Liver, and excellent for over-much Heat, and stopping of the Veins, and for such as have burning Urine, or Tenesmus.

In stoppeth a Gonorrhæa, Hemorrhoids, Piles, Menses.

It stoppeth Vomitting, Hickup.

It openeth Obstructions of the Milt and Liver.

It is good for the Short winded.

It stops the Fluxes of the Milt and Liver.

It cureth the Green-sickness perfectly.

It cureth the Morpheus, and defends from the Stone. And, It

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It preserveth the Health in a good State.

By this Catalogue of Diseases we may see how great and numerous the good Effects of this Bath are in all the hot *Cacochymia's*, in all hot Defluxions, Pains, Evacuations; so that it equals the Bath Waters in the Virtues and good Effects, but has no ill Effects on any Person, because of that exact Temper of its Heat, which wants but little of the Natural Tepor in Animal Humours.

As to that long Discourse about Diet and Exercise, in *Jones*, I think them not necessary, nor fit to be printed, because there is nothing new in them, but what occurs in *Galen*, *Ætius*, *Avicenna*, and many more, *Jones* quotes; by which we may be convinced he was as well read, and of as good Judgment, as any of that Age.

He recommends both Dinner at Eleven a-clock, and Supper about Five; and that the Persons who come from the *Southern* Parts be well cloathed, because it is a much colder Air, but very pure; and that good Fires do

well; and he says you may use a more plentiful Diet at *Buxton* than at *Bathe*: And I see no reason to alter our ordinary Diet at these Baths; for as we use a more cooling Diet in hot Bodies and Baths, so in the cooler Baths we must use a more heating Diet; and that is an ordinary Diet of Flesh-Meats, and moderate Drinks. In the Morning after bathing drink either *St. Ann's-Well*, or 2 Quarts of the Vitriolic Chalybeate Water lately found out there: And Water-drinking does not only cool and strengthen the inward *Viscera*, but hinders the breeding of hot Fumes, Vapours, or Spirits in the Body, which could not safely be stopt in the Body; and both together seem to me powerfully to alter the hot *Cacochymia's* in Animals.

At Dinner eat of your accustom'd Diet: Herbs, Fruits, Legumens, Milk-Meats, and Salt Meats are usually condemn'd at Baths, being at all times but indifferent Food. But if the Diet must be Physical, it must be ordered as the Strength, Custom, Disease, and the

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the Nature of the Bath requires. And since the Bath cools, and the Diseases be hot, the Diet here may be made as for all hot *Cacochymia's*; more cold and moist, if the Disease require it: And the weak and thin are to be more plentifully nourished, and the Quality of the Diet contrary to the hot State of Humours; but in healthful Persons the ordinary Diet is most convenient in these Baths.

Bath-Waters seem improper with Meats, because Diuretic.

In the use of those Baths, we must avoid all Excess, Lassitude by great Exercise, and Retention of Excrements, or Evacuations too much, by *Venery*, Stools; Sweats.

The Ancient Writers prescribe Exercise before these Cold Baths; and Persons commonly bathe as soon as they come thither. The design of the Exercise was to excite a greater Heat, to conflict with the cold Water; but cannot be necessary here, because the Bath is Tepid.

Jones orders to tarry two or three Days before you enter the Bath ; and truly this time might be well spent in Vomiting with *St. Ann's Well-Water*, for those it is convenient : And after purging with *Epsom Salt*, or *Sal Mirabile*, dissolving $\frac{3}{4}$ β or $\frac{3}{4}$ j . in two Quarts of that Water.

The time of bathing *Jones* orders to be in the Morning and Evening, but after your Exercise and Purging, and altogether before Meat, in the Summer Season, between the beginning of *May*, and the latter End of *September*.

In the Bath you may tarry two or three Hours if you please, and the Body be fit for it, and the Disease require it.

But I think the Time is to be discerned by every Person's own Sense ; for when they are very much chill, they ought to go forth.

After you come forth, your Clothes well air'd (in the next Room) your Bodies well dry'd, and especially your Head, they may go to Bed, and Sweat, with two Bladders of Water apply'd to them hot.

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This Practice is diffus'd; for it is not rational to Sweat when we come to close our Pores, and cool our Humours; but we go to Bed only to keep our selves warm.

The Diet, Exercise, Friction, Purging, Bleeding, mention'd in *Jones*, are no more than common Rules writ by *Galen* and others.

He advises to continue at *Buxton* Fourteen, Twenty, or Forty Days; the common practice is a Week.

All the Exercise necessary is what is usual at any other time for our Healths; he who when he is very hot, would go into the Water to chill him; that is, to create hot Fumes, and stop the Pores; and will certainly produce a Fever or Defluxions.

He proposes a Register of the Patient's Name, Disease, Country, coming and going thence, paying for it according to the Quality of the Person, some to the Poor, and the rest to the Book-keeper.

An Abstract of some Cures performed by Buxton-Bath; taken from Divers Certificates and Letters sent to me by Mr. White, the Keeper of that Bath.

IN the Gout the Virtues of this Water have been well experienc'd; and were successfully tryed by *Caleb Pott*, Schoolmaster of *Audlem* in the County of *Chester*, who came thither on his Crutches, and went away very well, and testify'd this under his hand, 1689.

I met with an old Divine there last Year, who constantly frequents that Bath every Summer, and acknowledged to me, that he had received great Benefit by that Bath against the Gout.

I met with a Person who had been there for a Scorbutic Rheumatism, and he assured me, that after general Evacuations, his Pains immediately ceased by frequent bathing.

Mr. Stephen Kaye, Rector of *Marton* in *Lincoln-shire*, who used the Baths
four

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four Years successively, was cured of the Gravel in the Kidneys, which tortur'd him for several Years : And also of the Gout, to which he was subject. Of this he gave his Testimony in writing.

This Bath hath had good success in Lameness, and Pains of the Limbs, as appears to me by a Certificate under the Hand of *Edmund Horncastle*, of *Clarbrough*, in the County of *Notttingham*, who by the use of this Bath recover'd of his Lameness and Pains, and went away without his Crutches.

The Statute of 43 *Eliz.* provided for the passing of cripled or sick Persons to *Buxton* as well as *Bathe*; which is a sufficient Testimony of its being eminent for curing Lameness in those Days.

Mr. White the Bath-keeper gave me many Instances of Cures done on the Scurvy, Leprosie, Dropsie, Lameness, Pains, Gravel, Stone; and in the Gravel it had great Effect on *Robert Downs*, Bath-keeper there; and another Person from *Hull*. And he farther gave
: me

me an Account of a young Woman from *Uttoxeter*, who long languished under a Consumption, and was there cured.

It is very useful in Distillations and *Asthma's*, by which I believe I received much Benefit; the *Pseuchrolusia* is no less beneficial than the *Hydroposia*. And here we drink the same kind of Water we bathe in, as they do at *Bathe*. And we alter the Humours by drinking, which helps the Effects of the Bath-Water externally.

Mrs. Tripp of *Weston-Underwood*, in the County of *Bucks*, was cured of a high Scurvy, and of a Consumptive Cough, *Ann. Dom. 1689*.

Mr. *Fauler* of *South-Wells* in *Notttingham-shire*, 1691. was cured of a Rheumatism mixt with the Dropfie and Scurvy.

Thomas Redford of *South-Wingfield*, in the County of *Derby*, was cured of an Universal Leprosie, 1696. And, *Elizabeth Cruchbow* of the same Town, was also cured of the same.

Josiah Stocke of *Sheffield* in *York-shire*, was cured of an Ague about thirty Weeks standing.

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This Water did not curdle Milk, as I try'd by boiling; nor did it much precipitate White with Spirit of Harts-Horn; but it turn'd a little.

A brief Description of divers rare and admirable Cures (from Lidia Morewood) and the same perfectly effected by the Virtue of Buxton-Bath.

MRS. Elizabeth Dorley in York-shire, was by Sickness and Pains almost depriv'd of the use of her Body for Five Years; and by the Application of this Bath, in one Week she regain'd her Strength so much, that she could walk abroad, and within Sixteen or Seventeen Days, she perfectly regain'd her Health and Strength of Body.

One Manforth of York-shire was brought by three Men, who in one Week regain'd his Strength so much, that he could walk abroad, and by a continued

nued Application of the same, he perfectly recover'd,

Mr. *Bateman's* Son of *Youlgreave*, who had lost the use both of his Speech and Limbs, was perfectly cured by this same Bath.

A *Stationer's* Daughter of *Nottingham*, which had her Body wholly overspread with Scurf and Scales, regain'd a pure and free Flesh by this Bath.

Mr. *Gill*, near *Ragby* in *York-shire*, was seized with a Tumour in one side, which the Physicians and Surgeons failing to cure, he came to this Bath, and thereby receiv'd an absolute and perfect Cure.

Dr. *Wheatly* near *Barnsley* having for several Years frequented this Bath, but having this last Summer omitted the same, acknowledged a decay of his Health thro' his omission; which within the same Year gave an *Exit* to his Life.

Several People, which being Strangers to me, I cannot express their Names; but I can assuredly testify, that

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that many who have had Red Spots within their Flesh, wholly defacing their Body, were taken away by this Bath.

And very many lame and impotent People, which have come hither, some by the help of Crutches, others born by Men and Horses, have regain'd their Strength, and the use of their Limbs, by the same Bath.

*These were truly penn'd by Thomas
Bishop, Schoolmaster in Buxton,
from me Lidia Morewood.*

A Boy having his Hands and Feet overspread with an obdurate scaly Matter, regain'd a pure, soft, and free Flesh by this Bath. *Attested by Lidia Goodwin of Buxton.*

Mr. Low of Arraslee in Derby-shire, having very dangerously hazarded his Life by excessive drinking, with other Companions, which died thereupon, continu'd in this Bath for Twelve Hours, and from the same receiv'd a Cure. *By Roger Goodwin of Buxton.*

Sarah

Sarah Middleton of *Buxton* having a Lameness in one Knee, so that for half a Year she was supported with Crutches, was by this Bath perfectly cured.

A certain Man which came from *Nottingham*, went by Crutches; in one Months time by this Bath regain'd his full Strength. By *Sarah Middleton* of *Buxton*.

Mrs. Hill from *York* was so lame that she went by Crutches; in one Weeks time regain'd her full Strength and use of Limbs, by this Bath.

A Gentleman from *York* having a Relapse of a cold Palsey, in two Weeks time was cured by this Bath.

A certain poor Man near *Warrington* in *Lancashire*, having many Sores and Runnings upon his Body, in two Weeks time receiv'd a perfect Cure from this Bath.

Ralph Saxon of *Buxton*, having several Sores and Runnings of his Body, was cured by this Bath.

Mr. Jackson, a Minister of the Gospel, having left a Place of considerable Value, came and serv'd at this mean Place

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Place of *Buxton*, in expectation of the benefit of this Bath; and receiv'd a perfect Cure for the Stone from the same.

By Anthony Cleaton Sen. of Buxton.

These are all impartial Accounts, as testify'd by Cornelius White.

23 Jan.

1696.

New Improvements at Buxton-Baths, Anno Domini 1695 and 1696, by Cornelius White, an Attorney of his Majesty's Court of Kings-Bench at Westminster, and one of the Society of Clement's-Inn, London; present Tenant to the Premisses, under his Grace William Duke of Devonshire.

BY taking off some of the cold Springs from the hot, the antient Bath repaired and paved, and a new one made, for the better conveniency of the poor and impotent; And a Sough about

about 200 Yards in length, to drain both, for the cleansing thereof every Day; with more private Apartments for Lodgings, new Stables, new Gardens, new Bowling-Green, and several Green Walks; a cold Mineral Spaw now discover'd within 200 Yards of the warm Spaws, the warm Springs being separate, and about 40 Yards distant from the Bath, approved of by the most eminent Physicians. About the middle of the Sough a Cistern of Lead was found two Yards square, and one Foot deep, being four Yards within the Earth, supported by several Oaken Planks: Something higher, in the same Sough, was found a place seven Yards wide, and twenty Yards long, being smooth and even on both sides and at the bottom, two Yards deep in the Earth, and made of Stone.

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